

**INTERNATIONAL PELVIC PAIN SOCIETY  
2014 IPPS Annual Fall Meeting on Chronic Pelvic Pain  
October 24 – 25, 2014 • Chicago, Illinois**



**IPPS President Dr. Frank F. Tu welcomes you to the 2014 Annual Fall Meeting!**

**PROGRAM CO-CHAIRS**



**Sarah D. Fox, MD**



**Sawsan As-Sanie, MD, MPH**

	<b>WEDNESDAY, OCTOBER 22, 2014</b>
4:00 p.m. – 6:00 p.m.	<b>Registration/Information Desk Open</b> <i>Location: Grand Ballroom Foyer</i>

	<b>THURSDAY, OCTOBER 23, 2014</b>
7:00 a.m. – 5:00 p.m.	<b>Registration/Information Desk Open</b> <i>Location: Grand Ballroom Foyer</i>
7:00 a.m. – 8:00 a.m.	<b>Breakfast</b> <i>Location: State Ballroom</i>
10:00 a.m. – 6:30 p.m.	<b>Exhibit Hall Open</b> <i>Location: State Ballroom</i>
5:00 p.m. – 6:30 p.m.	<b>Welcome Reception</b> <i>Location: State Ballroom</i>
6:30 p.m. – 9:30 p.m.	<b>IPPS Board of Directors Meeting</b> <i>Location: Hancock Parlor</i>
8:00 a.m. – 5:00 p.m.	<b>BASICS COURSE (Optional Concurrent Pre-Conference Session)</b> <i>Location: Grand Ballroom</i>
8:00 a.m. – 8:30 a.m.	<b>Introduction to the Physiology of Chronic Pain</b>
8:30 a.m. – 9:00 a.m.	<b>Evaluation of CPP: Essential Elements of the History &amp; Gyn Exam</b>
9:00 a.m. – 9:50 a.m.	<b>Evaluation and Treatment of Musculoskeletal Causes of CPP</b>
9:50 a.m. – 10:05 a.m.	<b>Discussion</b>
10:05 a.m. – 10:25 a.m.	<b>Break</b>
10:25 a.m. – 11:05 a.m.	<b>Diagnosis and Treatment of Endometriosis and Other Utero-Ovarian Causes of CPP</b>
11:05 a.m. – 11:45 a.m.	<b>Diagnosis and Treatment of Vulvar Pain</b>
11:45 a.m. – 12:00 p.m.	<b>Discussion</b>
12:00 p.m. – 1:00 p.m.	<b>Lunch on Your Own</b>
1:00 p.m. – 1:35 p.m.	<b>Diagnosis and Treatment of Abdominal and Pelvic Peripheral Neuropathies</b>
1:35 p.m. – 2:15 p.m.	<b>Diagnosis and Treatment of Urologic Causes of CPP</b>
2:15 p.m. – 2:50 p.m.	<b>Diagnosis and Treatment of Functional Bowel Disorders</b>
2:50 p.m. – 3:05 p.m.	<b>Discussion</b>
3:05 p.m. – 3:25 p.m.	<b>Break</b>
3:25 p.m. – 4:05 p.m.	<b>Medical and Behavioral Therapies for Chronic Pain</b>
4:05 p.m. – 4:45 p.m.	<b>Psychological Aspects of Living with CPP: Evaluation and Treatment of Comorbid Anxiety and Depression</b>
4:45 p.m. – 5:00 p.m.	<b>Discussion</b>
12:30 p.m. – 5:20 p.m.	<b>RESEARCH COURSE (Optional Concurrent Pre-Conference Session)</b> <i>Location: Spire Parlor</i>
12:30 p.m. – 12:45 p.m.	<b>Welcome &amp; Instructions and Faculty Introductions</b>
12:45 p.m. – 1:20 p.m.	<b>Study Design</b>
1:20 p.m. – 2:00 p.m.	<b>Measuring Pain Outcomes in Research</b>
2:00 p.m. – 2:40 p.m.	<b>How to Write a Good Paper</b>
2:40 p.m. – 2:55 p.m.	<b>Break</b>
2:55 p.m. – 3:35 p.m.	<b>The Basics of a Good Grant</b>
3:35 p.m. – 4:35 p.m.	<b>Work in Progress Round Tables and Q&amp;A</b>
4:35 p.m. – 5:05 p.m.	<b>Where to Look for Funding</b>
5:05 p.m. – 5:20 p.m.	<b>Q&amp;A and Closing</b>

FRIDAY, OCTOBER 24, 2014	
7:00 a.m. – 5:00 p.m.	<b>Registration/Information Desk Open</b> <i>Location: Grand Ballroom Foyer</i>
7:00 a.m. – 8:00 a.m.	<b>Breakfast</b> <i>Location: State Ballroom</i>
7:00 a.m. – 4:00 p.m.	<b>Exhibit Hall Open</b> <i>Location: State Ballroom</i>
7:50 a.m. – 7:55 a.m.	<b>Welcome &amp; Announcements</b>
7:55 a.m. – 8:00 a.m.	<b>Presidential Address</b>
8:00 a.m. – 8:50 a.m.	<b>C. Paul Perry Memorial Lecture: Creating Research Networks to Improve Outcomes in Pelvic Pain</b>
8:50 a.m. – 9:30 a.m.	<b>The Role of Combined Hormonal Contraceptives and Vulvodynia: Finally Putting This Controversy to Bed</b>
9:30 a.m. – 9:45 a.m.	<b>Q&amp;A</b>
9:45 a.m. – 10:15 a.m.	<b>Break &amp; Poster Viewing Session I</b> <i>Location: State Ballroom</i>
10:15 a.m. – 10:55 a.m.	<b>Injection Strategies for Chronic Pelvic Pain</b>
10:55 a.m. – 11:35 a.m.	<b>Surgical Mesh: Avoiding and Managing Complications</b>
11:35 a.m. – 11:50 a.m.	<b>Q&amp;A</b>
11:50 a.m. – 1:20 p.m.	<b>Roundtable Lunch with Experts (Optional Event)</b> <i>Location: Monroe Room</i>
11:50 a.m. – 1:20 p.m.	<b>Lunch on Your Own</b>
1:20 p.m. – 2:00 p.m.	<b>The Role of Resilience in Chronic Pain</b>
2:00 p.m. – 2:35 p.m.	<b>Sexual Function in the Patient with Chronic Pelvic Pain</b>
2:35 p.m. – 3:15 p.m.	<b>Integrating Central Sensitization into Clinical Practice</b>
3:15 p.m. – 3:30 p.m.	<b>Q&amp;A</b>
3:30 p.m. – 4:00 p.m.	<b>Break &amp; Poster Viewing Session I</b> <i>Location: State Ballroom</i>
4:00 p.m. – 4:25 p.m.	<b>Journal Club: Endometriosis and Chronic Pelvic Pain: Is It All in Her Head? Unraveling Central Neural Mechanisms in Endometriosis and Chronic Pelvic Pain</b>
4:25 p.m. – 4:50 p.m.	<b>Journal Club: Pain Sensitivity and Psychosocial Factors in Female Pelvic Pain: Clinical Implications for Assessment and Treatment</b>
4:50 p.m. – 5:00 p.m.	<b>Q&amp;A</b>
5:00 p.m. – 6:00 p.m.	<b>Poster Viewing Session II</b> <i>Location: State Ballroom</i>
6:00 p.m. – 8:00 p.m.	<b>2014 IPPS Fundraising Event</b> <i>Location: Petterino's Restaurant, 150 N Dearborn St. Chicago, IL</i>

	<b>SATURDAY, OCTOBER 25, 2014</b>
<b>7:00 a.m. – 5:30 p.m.</b>	<b>Registration/Information Desk Open</b> <i>Location: Grand Ballroom Foyer</i>
<b>6:15 a.m. – 7:15 a.m.</b>	<b>Yoga for Pelvic Pain</b> <i>Location: Water Tower Parlor</i>
<b>7:00 a.m. – 8:00 a.m.</b>	<b>Breakfast</b> <i>Location: State Ballroom</i>
<b>7:00 a.m. – 4:00 p.m.</b>	<b>Exhibit Hall Open</b> <i>Location: State Ballroom</i>
<b>7:50 a.m. – 8:00 a.m.</b>	<b>Welcome &amp; Announcements</b>
<b>8:00 a.m. – 8:50 a.m.</b>	<b>James E. Carter Memorial Lecture: Imagine Your Pelvic Floor as a Twisted Door, How Well Would It Open &amp; Close? New Perspectives from The Integrated Systems Model for Women's Health</b>
<b>8:50 a.m. – 9:35 a.m.</b>	<b>Functional Nausea and Vomiting</b>
<b>9:35 a.m. – 9:50 a.m.</b>	<b>Q&amp;A</b>
<b>9:50 a.m. – 10:20 a.m.</b>	<b>Break &amp; Poster Viewing Session II</b> <i>Location: State Ballroom</i>
<b>10:20 a.m. – 11:30 a.m.</b>	<b>Opioid Therapy in Chronic Pain Conditions: A Call for Sanity</b>
<b>11:30 a.m. – 11:50 a.m.</b>	<b>Q&amp;A</b>
<b>11:50 a.m. – 1:05 p.m.</b>	<b>Lunch on Your Own</b>
<b>11:50 a.m. – 1:05 p.m.</b>	<b>Committee Fair</b> <i>Location: Monroe Room</i>
<b>1:05 p.m. – 1:50 p.m.</b>	<b>New Developments in the Management of Painful Bladder and Interstitial Cystitis</b>
<b>1:50 p.m. – 2:25 p.m.</b>	<b>A Non-Urologic Approach to Urologic Pelvic Pain</b>
<b>2:25 p.m. – 3:00 p.m.</b>	<b>Altered Brain Motor Control Networks in Men with CPP: A Trans-MAPP Neuroimaging Study</b>
<b>3:00 p.m. – 3:15 p.m.</b>	<b>Q&amp;A</b>
<b>3:15 p.m. – 3:45 p.m.</b>	<b>Break</b>
<b>3:45 p.m. – 4:15 p.m.</b>	<b>Oral Abstract Sessions</b>
<b>4:15 p.m. – 4:30 p.m.</b>	<b>Q&amp;A</b>
<b>4:30 p.m. – 4:45 p.m.</b>	<b>Meeting Awards</b>
<b>4:45 p.m. – 5:00 p.m.</b>	<b>Closing Remarks</b>
<b>5:00 p.m. – 5:30 p.m.</b>	<b>Annual Business Meeting</b>

	<b>SUNDAY, OCTOBER 26, 2014</b>
<b>7:00 a.m. – 3:00 p.m.</b>	<b>Registration/Information Desk Open</b> <i>Location: Grand Ballroom Foyer</i>
<b>7:00 a.m. – 8:00 a.m.</b>	<b>Breakfast</b> <i>Location: Grand Ballroom Foyer</i>
	<b>POST-CONFERENCE COURSE</b> <i>Location: Grand Ballroom</i>
<b>8:00 a.m. – 9:30 a.m.</b>	<b>Lecture 1: Treating the Whole Person – The Integrated Systems Model for Pain &amp; Disability (Lee &amp; Lee) An Evidence-Based Approach to Optimize Strategies for Function and Performance</b>
<b>9:30 a.m. – 9:45 a.m.</b>	<b>Discussion</b>
<b>9:45 a.m. – 10:00 a.m.</b>	<b>Break</b>
<b>10:00 a.m. – 12:00 p.m.</b>	<b>Lecture 2: New Perspectives from The Integrated Systems Model for Treating Women with Pelvic Girdle Pain, Urinary Incontinence, Pelvic Organ Prolapse</b>
<b>12:00 p.m. – 12:15 p.m.</b>	<b>Discussion</b>
<b>12:15 p.m. – 1:00 p.m.</b>	<b>Light Lunch</b>
<b>1:00 p.m. – 3:00 p.m.</b>	<b>Lecture 3: Split Down the Middle? Diastasis Rectus Abdominis and the Implications for Form &amp; Function of the Trunk After Pregnancy</b>

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## 2014 IPPS Annual Fall Meeting on Chronic Pelvic Pain

### Course Description

Welcome to the 2014 IPPS Annual Fall Meeting on Chronic Pelvic Pain. This year the program will include cutting-edge basic science and clinical research findings, as well as recommendations for the management of chronic pelvic pain (CPP) in male and female patients. Participants will also learn about avoiding common pitfalls in the management of CPP patients. The Basics Course has been designed to provide a foundation of knowledge about the etiology, diagnosis and management of CPP disorders. It also includes an overview of the neurophysiology and biopsychosocial elements involved in managing chronic pain. It is recommended that providers and researchers who are new to pelvic pain attend the Basics Course in order to get more out of the general meeting. New this year is a half-day Research Course, which will allow participants to learn from top researchers how to carry out high-quality research on CPP with a small budget. The small size of the Research Course will allow for interaction and collaboration. For providers who would like a more in-depth understanding of musculoskeletal, neurological and visceral causes of pelvic pain, the Post-Conference Course will provide an opportunity to master these subjects. The popular morning yoga session will return and the "Roundtable Lunch with the Experts" series has been expanded to cover new topics.

### Needs

Chronic pelvic pain is a common and often debilitating syndrome. It is as common as asthma, yet most medical providers receive little or no education about managing the complex CPP patient. One study estimated only 10 percent of medical school graduates were prepared to treat CPP. The social, psychological and financial costs associated with treatments of these disorders are enormous. Many patients endure being misdiagnosed or receiving inappropriate treatment because of the practitioner's lack of knowledge on this subject. Tragically, this mismanagement may actually worsen a patient's pain. It is critical that health care providers receive education about factors that affect patient care and that researchers collaborate to produce high-quality outcomes-based studies on chronic pelvic pain disorders. Without exchange of clinical and research information across all disciplines encompassing the treatment of CPP, advances in treatment options for those patients will not be possible.

### Educational Objectives

#### Basics Course & Case Studies

At the completion of this course, attendees should be able to:

- Identify principal somatic and visceral etiologies for pelvic pain.
- Construct a complete history and physical examination for diagnosing relevant factors in pelvic pain presentation.
- Recognize the availability of pharmacological, procedural and mind-centered techniques for treatment of pelvic pain.
- Describe evidence-based determination of pelvic pain diagnoses.
- Identify evidence-based medical and physical therapy treatment techniques for CPP.
- Review evidence-based management strategies that will be immediately applicable in the clinic.

#### 2014 IPPS Annual Fall Meeting on Chronic Pelvic Pain

At the completion of this course, attendees should be able to:

- Describe three areas of a well-designed multi-site interventional research trial.
- List three challenges to avoid in designing a multi-site research trial.
- Submit to the IPPS leadership one resource that the learner could contribute to designing an IPPS Network for the study of chronic pelvic pain.
- Review data on combined hormonal contraception and vulvar pain.
- Identify patients who may be at risk for combined hormonal contraception.
- Describe strategies for managing patients with vulvar pain and contraceptive needs
- Identify diagnostic and therapeutic injections for the patient with CPP.
- Review the role of glucocorticoids and botulinum toxin in injections.
- Review common pitfalls in injections and strategies to maximize efficacy.
- To review the most updated understanding of the etiology of bladder pain.
- To discuss new developments in treatment of bladder pain.
- To lay out a sensible, cost-effective protocol for management of patients with painful bladder syndrome.
- Describe the neurobiological relationship between affective processes and physical pain.
- Discuss how positive affect can act as a resource for individuals with chronic pain.
- List several easy-to-implement interventions that can improve resilience and positive affect.
- Describe etiologies of sexual dysfunction in patients with chronic pelvic pain.
- Integrate medical and non-pharmacologic options into management of patients with sexual dysfunction and pelvic pain.
- Evaluate special considerations in the use of hormonal medications to manage sexual dysfunction.

- Assess evidence base for considering central pain mechanisms in pelvic pain.
- Integrate practical ways of integrating pain neuroscience into physical therapy.
- Describe the balance in treatment of tissue dysfunction and central pain mechanisms.
- Review the evidence that chronic pelvic pain is related to amplification of central nervous system pain processing.
- Describe changes in regional brain morphology associated with CPP.
- Prepare a conceptual model on how some but not all women with endometriosis develop chronic pelvic pain.
- Describe methods of assessing pelvic region pain sensitivity as part of assessment and/or in response to treatment.
- Identify common psychosocial factors that may negatively influence the pain experience and identify standardized measures to assess these factors.
- Identify The Integrated Systems Model for Disability & Pain and discuss how it can provide a framework for clinical reasoning in order to find the underlying driver for the patient's problem – whether this is pain, loss of function/performance, continence or other disabilities.
- Describe the role of the pelvic floor myofascial unit as it relates to the transference of loads through the trunk (including the pelvis-hip complex) as well as the maintenance of continence and pelvic organ support.
- Describe the impact of an intra-pelvic torsion on function of the pelvic floor muscle (PFM) and then how The Integrated Systems Model is used to determine what is driving (causing) the intra-pelvic torsion (i.e. the foot, the hip, the pelvis, the thorax, the cranium, etc.) and thus where to direct treatment.
- Identify published guidelines and practical experience in treating patients with functional nausea and vomiting.
- Differentiate organic cause from functional causes of nausea and vomiting.
- Describe methods of supportive management and preventive care.
- Explain the perspective of both sides of the risk benefit ratio of chronic opioid therapy.
- Integrate a 'moral compass' in this complicated and unguided area and develop a framework for ethical use of these powerful, important and risky drugs.
- Describe clinical presentations of mesh complications.
- Review methods to prevent these complications.
- Review conservative and surgical management of complications.
- Recognize vast differential diagnosis beyond end organ target.
- Identify causes or perpetuators by history and physical exam.
- Enhance confidence and compassion in caring for urologic chronic pelvic pain syndrome (UCPPS).
- Describe fundamental brain networks that regulate pelvic floor muscle activity.
- Identify how these networks may be affected by CPP.
- Explain the central and peripheral factors that could influence motor reorganization in the brain.

## **Research Course**

### ***Introduction to Research and Publication Methodology for Pain Research***

## **Needs**

Nearly 80 percent of gynecology research projects that get submitted for publication in peer-reviewed journals do not meet basic research methodology standards. Rigorous adherence to study design and the basics of journal publication are not consistently taught in Ob-Gyn training programs.

## **Educational Objectives**

At the completion of this course, attendees should be able to:

- Review study designs including trials, cohort, case control and case series studies.
- Explain the importance of properly defining exposure and outcomes in research.
- Describe the basic requirements for publication in peer-reviewed journals.
- Identify the basic components of grant writing.
- List the available resources for funding pain research.
- Review projects of publications attendees present as work in progress.

## **Post-Conference Course**

### ***New Perspectives from The Integrated Systems Model for Women's Health***

## **Needs**

It is well known that the abdominal wall and pelvic floor play key roles in function of the trunk and that pregnancy and delivery can have significant long-lasting impact. Postnatal non-optimal strategies for the transference of loads through the trunk can create pain in a multitude of areas as well as affect the urinary continence mechanism and support of the pelvic organs.



The Integrated Systems Model for Disability & Pain (Lee & Lee), is a framework to help clinicians organize knowledge (evidence and experientially based) and develop clinical reasoning skills that subsequently facilitate best decisions for treatment. A key feature of this approach is Meaningful Task Analysis and Finding the Primary Driver. Briefly, this involves choosing tasks to assess that are relevant to the patient's story (meaningful to the patient's complaints and functional difficulties), assessing the whole body (strategy analysis of the task) to find the criminal (the driver), and then developing sound hypotheses as to how the criminal relates to its multiple victims.

Clinical reasoning of multiple findings and manual/visual assessment and treatment skills are emphasized in this course with plenty of discussion devoted to these two clinical practice tools. At the conclusion of this course, you will have a new perspective through the lens of The Integrated Systems Model of things to consider for restoring optimal form and function of the abdominal wall and pelvis floor after pregnancy.

### **Educational Objectives**

At the completion of this course, attendees should be able to:

- Explain how dysfunction in any area of the trunk can be a primary underlying cause or significant contributing factor to common postpartum conditions such as pelvic girdle pain, pelvic organ prolapse, urinary incontinence and diastasis rectus abdominis.
- Illustrate how The Integrated Systems Model for Disability & Pain can provide a framework for knowledge organization and translation.
- Illustrate through clinical tests for the pelvis, hip and thorax how to determine whether or not a patient is using an optimal strategy for function and performance for their chosen task and when there are multiple sites of impairment, how to determine the 'primary driver' or impairment to be addressed first.
- Illustrate through clinical cases treatment techniques and movement training to release, align, connect and move the trunk/hips for restoration of form and function of the postnatal woman.
- Explain the behavior of the linea alba in nulliparous versus postnatal women with diastasis rectus abdominis that suggests when surgery (abdominoplasty and rectus plication) versus conservative treatment is indicated.

## CME Accreditation

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of the American College of Surgeons and the International Pelvic Pain Society. The American College of Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

The American College of Surgeons designates this live activity for a maximum of **28.00 AMA PRA Category 1 Credits™\***. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

*\*Portions of the meeting are concurrent; therefore, it is not possible to obtain full credit for all programs listed:*

### **Annual Meeting**

Maximum of **14.00 AMA PRA Category 1 Credits™**

### **Basics Course**

Maximum of **7.25 AMA PRA Category 1 Credits™**

### **Research Course**

Maximum of **4.75 AMA PRA Category 1 Credits™**

### **Post Conference Course**

Maximum of **6.00 AMA PRA Category 1 Credits™**



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### **Special Assistance**

We encourage participation by all individuals. If you have a disability, advance notification of any special needs will help us better serve you. Call **(847) 517-8712** if you require special assistance to fully participate in the meeting.

## AANP Accreditation

This program is approved for **28.00** contact hour(s) of continuing education (which includes **1.25** hours of pharmacology) by the American Association of Nurse Practitioners. Program ID 1408377. This program was planned in accordance with AANP CE Standards and Policies and AANP Commercial Support Standards.



## Illinois Physical Therapy (IPTA) Credits

The Illinois Chapter Continuing Education Committee has approved this course according to the Criteria for Approval of Continuing Education offerings established by the Illinois Physical Therapy Association. The 2014 IPPS Annual Fall Meeting on Pelvic Pain has been accredited for a maximum of **28.00** Continuing Education hours.

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Kumari A. Hobbs, MD, MSCR  
New York Pelvic Pain and Minimally Invasive Gynecologic  
Surgery  
New York, NY

Fred M. Howard, MD, MS, FACOG  
University of Rochester  
Rochester, NY

Heather Jeffcoat, DPT  
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Glendale, CA

Laurie Keefer, PhD  
Northwestern University Feinberg School of Medicine  
Chicago, IL

Khalid S. Khan, MMed, MRCOG, MSc, FCPS, MBBS  
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University of Southern California  
Los Angeles, CA

Georgine Lamvu, MD, MPH, FACOG  
Advanced Minimally Invasive Surgery and Gynecology  
Orlando, FL

Diane Lee, BSR, FCAMPT, CGIMS  
Diane Lee & Associates Consultants in Physiotherapy  
South Surrey, British Columbia

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Flourish Physical Therapy  
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Leah S. Millheiser, MD, FACOG, IF  
Stanford University School of Medicine  
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University of Minnesota Division of Epidemiology &  
Community Health  
Minneapolis, MN

Ann L. Oldendorf, MD  
University of Michigan Health System  
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Vista Urology & Pelvic Pain Partners  
San Jose, CA

Jeannette M. Potts, MD  
Vista Urology & Pelvic Pain Partners  
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Stephanie Prendergast, MPT  
Pelvic Health and Rehabilitation Center  
Los Angeles, CA

Andrea J. Rapkin, MD  
UCLA School of Medicine  
Los Angeles, CA

Tracy Sher, MPT, CSCS  
Sher Pelvic Health and Healing  
Orlando, FL

Hina Sheth, MS, PT, OCS, MTC  
Rebalance Physical Therapy  
Philadelphia, PA

Matthew Siedhoff, MD, MSCR  
University of North Carolina  
Chapel Hill, NC

Steven P. Stanos, Jr., DO  
Workers Compensation Physician Practice, RIC  
Chicago, IL

Amy Stein, DPT, BCB-PMD, IF  
Beyond Basics Physical Therapy  
New York, NY

Stephanie Thibault-Gagnon, BSc, PT  
Queen's University  
Kingston, Ontario

Frank F. Tu, MD, MPH  
Skokie Hospital  
Skokie, IL

M. Jean Uy-Kroh, MD  
Cleveland Clinic  
Cleveland, OH

Carolyn Vandyken, PT  
The Centre for Pelvic Health, Lifemark Health  
Cambridge, Ontario

Christin S. Veasley, BSc  
Chronic Pain Research Alliance  
N. Kingstown, RI

Juan Diego Villegas-Echeverri, MD  
Clinica Comfamiliar  
Pereira, Colombia

**IPPS Annual Fall Meeting on Chronic Pelvic Pain  
October 24 – October 25, 2014  
Chicago, IL**

In accordance with the ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. Therefore, it is mandatory that both the program planning committee and speakers complete disclosure forms. Members of the program committee were required to disclose **all** financial relationships and speakers were required to disclose any financial relationship **as it pertains to the content of the presentations**. The ACCME defines “commercial interest” as “any entity producing, marketing, re-selling or distributing health care goods or services consumed by, or used on, patients.” It does not consider providers of clinical service directly to patients to be commercial interests. The ACCME considers “relevant” financial relationships as financial transactions (in any amount) that may create a conflict of interest and occur within the 12 months preceding the time that the individual is being asked to assume a role controlling content of the educational activity.

**ACS is also required, through our joint sponsorship partners, to manage any reported conflict and eliminate the potential for bias during the activity. All program committee members and speakers were contacted and the conflicts listed below have been managed to our satisfaction. However, if you perceive a bias during a session, please report the circumstances on the session evaluation form.**

*Please note we have advised the speakers that it is their responsibility to disclose at the start of their presentation if they will be describing the use of a device, product or drug that is not FDA approved or the off-label use of an approved device, product, or drug or unapproved usage.*

**The requirement for disclosure is not intended to imply any impropriety of such relationships, but simply to identify such relationships through full disclosure and to allow the audience to form its own judgments regarding the presentation.**

## CME Organizers

**As-Sanie, MD, MPH, Sawsan**

**Tel: (734) 764-8429**

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>
Self	NONE	NONE

**Carey, MD, MSCR, Erin T.**

**Tel: (913) 588-6200**

I, or my spouse/partner presently (within the past 12 months) have relevant financial relationships with a commercial interest(s) as identified below:

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>
Self	Teleflex	Honorarium <span style="float: right;">X With Financial Interest</span>

**Fox, MD, Sarah D.**

**Tel: (401) 274-1122**

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>
Self	NONE	NONE

**Howard, MD, MS, FACOG, Fred M.**

**Tel: (585) 275-4004**

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>
Self	NONE	NONE

**Lamvu, MD, MPH, FACOG, Georgine**

**Tel: (407) 303-2780**

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>
Self	NONE	NONE



## CME Organizers (Con't)

**Prendergast, MPT, Stephanie**  
**Tel: (424) 293-2305**

<i>Who's Involved</i>	<i>Company</i>
Self	None

*Relationship Involvement*  
 NONE

**Stein, DPT, BCB-PMD, IF, Amy**  
**Tel: (212) 354-2622**

<i>Who's Involved</i>	<i>Company</i>
Self	None

*Relationship Involvement*  
 NONE

**Tu, MD, MPH, Frank F.**  
**Tel: (847) 677-1400**

I, or my spouse/partner presently (within the past 12 months) have relevant financial relationships with a commercial interest(s) as identified below:

<i>Who's Involved</i>	<i>Company</i>
Self	AbbVie
Self	AbbVie

<i>Relationship Involvement</i>	
Grant/Research Support	X With Financial Interest
Consultant/Advisor	X With Financial Interest

## CME Presenters and/or Authors

**Alappattu, PT, DPT, PhD, Meryl J.**  
**Tel: (352) 665-2006**

<i>Who's Involved</i>	<i>Company</i>
Self	None

*Relationship Involvement*  
 NONE

**Ayorinde, BSc, MSc, Abimbola**  
**Tel: +01224437118**

<i>Who's Involved</i>	<i>Company</i>
Self	None

*Relationship Involvement*  
 NONE

**Benjamin, MD, Amy**  
**Tel: (585) 487-3420**

<i>Who's Involved</i>	<i>Company</i>
Self	None

*Relationship Involvement*  
 NONE

**Brenner, MD, Darren M.**  
**Tel: (312) 695-5620**

I, or my spouse/partner presently (within the past 12 months) have relevant financial relationships with a commercial interest(s) as identified below:

<i>Who's Involved</i>	<i>Company</i>
Self	Forest/ Ironwood Pharmaceuticals
Self	Perrigo Pharmaceuticals
Self	Proctor and Gamble
Self	Salio Pharmaceuticals

<i>Relationship Involvement</i>	
Honorarium	X With Financial Interest
Honorarium	X With Financial Interest
Honorarium	X With Financial Interest
Honorarium	X With Financial Interest

**Butrick, MD, Charles W.**  
**Tel: (913) 307-0044**

<i>Who's Involved</i>	<i>Company</i>
Self	None

*Relationship Involvement*  
 NONE

**Castellanos, MD, Mario**  
**Tel: (602) 406-6017**

<i>Who's Involved</i>	<i>Company</i>
Self	None

*Relationship Involvement*  
 NONE

## CME Presenters and/or Authors (Con't)

**Chelimsky, MD, Thomas C.**

**Tel: (414) 805-5235**

*Who's Involved*

Self

*Company*

None

*Relationship Involvement*

NONE

**Chiao, MD, Gene Z.**

**Tel: (847) 433-3460**

I, or my spouse/partner presently (within the past 12 months) have relevant financial relationships with a commercial interest(s) as identified below:

*Who's Involved*

Self

*Company*

Ironwood Pharmaceuticals

*Relationship Involvement*

Honorarium

X

With Financial Interest

**Conway, MD, Mark**

**Tel: (603) 883-3365**

*Who's Involved*

Self

*Company*

None

*Relationship Involvement*

NONE

**Fenton, MD, PhD, Bradford W.**

**Tel: (330) 762-0954**

*Who's Involved*

Self

*Company*

None

*Relationship Involvement*

NONE

**Fillingim, PhD, Roger B.**

**Tel: (352) 273-5963**

*Who's Involved*

Self

*Company*

None

*Relationship Involvement*

NONE

**Fitzgerald, MD, Colleen M.**

**Tel: (708) 216-2170**

*Who's Involved*

Self

*Company*

None

*Relationship Involvement*

NONE

**Futterman, MPT, PT, WCS, Stacey J.**

**Tel: (212) 226-2066**

*Who's Involved*

Self

*Company*

None

*Relationship Involvement*

NONE

**Gafni-Kane, MD, Adam**

**Tel: (224) 251-2374**

*Who's Involved*

Self

*Company*

None

*Relationship Involvement*

NONE

**Goldstein, MD, IF, FACOG, Andrew T.**

**Tel: (202) 887-0568**

I, or my spouse/partner presently (within the past 12 months) have relevant financial relationships with a commercial interest(s) as identified below:

*Who's Involved*

Self

*Company*

Emotional Brain, Inc.

*Relationship Involvement*

Stock Shareholder (directly purchased)

X

With Financial Interest

Self

Emotional Brain, Inc.

Grant/Research Support

X

With Financial Interest

Self

Emotional Brain, Inc.

Investigator

X

With Financial Interest

**Gunter, MD, Jennifer**

**Tel: (415) 833-4076**

*Who's Involved*

Self

*Company*

None

*Relationship Involvement*

NONE

## CME Presenters and/or Authors (Con't)

**Harden, MD, R. Norman**

**Tel: (312) 238-7800**

*Who's Involved*  
Self

*Company*  
None

*Relationship Involvement*  
NONE

**Harrington, PT, DPT, WCS, CLT, Jennifer**

**Tel: (919) 595-9641**

*Who's Involved*  
Self

*Company*  
None

*Relationship Involvement*  
NONE

**Hartmann, PT, DPT, Elizabeth Dee**

**Tel: (312) 650-5242**

*Who's Involved*  
Self

*Company*  
None

*Relationship Involvement*  
NONE

**Hassett, PsyD, Afton L.**

**Tel: (734) 936-4000**

I, or my spouse/partner presently (within the past 12 months) have relevant financial relationships with a commercial interest(s) as identified below:

*Who's Involved*  
Self

*Company*  
Lexicon Pharmaceuticals

*Relationship Involvement*  
Consultant

X With Financial Interest

**Hobbs, MD, Kumari A.**

**Tel: (845) 853-3113**

*Who's Involved*  
Self

*Company*  
None

*Relationship Involvement*  
NONE

**Jeffcoat, DPT, Heather**

**Tel: (310) 871-9554**

*Who's Involved*  
Self

*Company*  
None

*Relationship Involvement*  
NONE

**Keefer, PhD, Laurie**

**Tel: (312) 695-0076**

*Who's Involved*  
Self

*Company*  
None

*Relationship Involvement*  
NONE

**Khan, MRCOG, Khalid S.**

**Tel: 447 977-559415**

*Who's Involved*  
Self

*Company*  
None

*Relationship Involvement*  
NONE

**Kutch, PhD, Jason J.**

**Tel: (323) 442-2932**

*Who's Involved*  
Self

*Company*  
None

*Relationship Involvement*  
NONE

**Lee, BSR, FCAMPT, CGIMS, Diane**

**Tel: 160 453-88338**

I, or my spouse/partner presently (within the past 12 months) have relevant financial relationships with a commercial interest(s) as identified below:

*Who's Involved*  
Self

*Company*  
CCRE University of Queensland

*Relationship Involvement*  
Consultant

X With Financial Interest

## CME Presenters and/or Authors (Con't)

**Miller, MSPT, Dustienne L.**

**Tel: (413) 551-9394**

I, or my spouse/partner presently (within the past 12 months) have relevant financial relationships with a commercial interest(s) as identified below:

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>		
Self	Yoga DVD's	Employee of a commercial interest organization	X	With Financial Interest

**Millheiser, MD, Leah**

**Tel: (650) 725-5986**

I, or my spouse/partner presently (within the past 12 months) have relevant financial relationships with a commercial interest(s) as identified below:

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>		
Self	Nuelle, Inc	Employee of a commercial interest organization	X	With Financial Interest

**Nguyen, PhD, Ruby H.N.**

**Tel: (612) 626-7559**

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>
Self	None	NONE

**Oldendorf, MD, Ann L.**

**Tel: (734) 615-1262**

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>
Self	None	NONE

**Payne, MD, Christopher K.**

**Tel: (650) 723-3391**

I, or my spouse/partner presently (within the past 12 months) have relevant financial relationships with a commercial interest(s) as identified below:

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>		
Self	Allergan	Honorarium	X	With Financial Interest
Self	Astellas	Honorarium	X	With Financial Interest
Self	New Pelvic Pain Technologies	Consultant	X	With Financial Interest

**Potts, MD, Jeannette M.**

**Tel: (650) 996-3761**

I, or my spouse/partner presently (within the past 12 months) have relevant financial relationships with a commercial interest(s) as identified below:

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>		
Self	New Pelvic Pain Technologies	Consultant	X	With Financial Interest

**Rapkin, MD, Andrea**

**Tel: (310) 825-6963**

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>
Self	None	NONE

**Sher, MPT, CSCS, Tracy**

**Tel: (407) 257-1403**

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>
Self	None	NONE

**Sheth, MS, PT, OCS, MTC, Hina**

**Tel: (215) 546-0713**

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>
Self	None	NONE

## CME Presenters and/or Authors (Con't)

**Siedhoff, MD, MSCR, Matthew**

**Tel: (917) 687-4094**

<i>Who's Involved</i>	<i>Company</i>
Self	None

*Relationship Involvement*  
NONE

**Stanos, DO, Steven P.**

**Tel: (312) 238-7800**

I, or my spouse/partner presently (within the past 12 months) have relevant financial relationships with a commercial interest(s) as identified below:

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>
Self	Collegium	Consultant <b>X</b> With Financial Interest
Self	Mallinckrodt	Consultant <b>X</b> With Financial Interest
Self	Matrix	Consultant <b>X</b> With Financial Interest
Self	Pfizer	Consultant <b>X</b> With Financial Interest
Self	Zogenix	Consultant <b>X</b> With Financial Interest

**Thibault-Gagnon, BScPT, Stephanie**

**Tel: (613) 546-2487**

<i>Who's Involved</i>	<i>Company</i>
Self	None

*Relationship Involvement*  
NONE

**Uy-Kroh, MD, M. Jean**

**Tel: (216) 444-0551**

<i>Who's Involved</i>	<i>Company</i>
Self	None

*Relationship Involvement*  
NONE

**Vandyken, PT, Carolyn**

**Tel: (519) 624-8798**

I, or my spouse/partner presently (within the past 12 months) have relevant financial relationships with a commercial interest(s) as identified below:

<i>Who's Involved</i>	<i>Company</i>	<i>Relationship Involvement</i>
Self	Author of patient education booklet "Why does Pelvic Pain Hurt?"	Other: <b>X</b> With Financial Interest

**Veasley, BSc, Christin S.**

**Tel: (401) 316-2089**

<i>Who's Involved</i>	<i>Company</i>
Self	None

*Relationship Involvement*  
NONE

**Villegas-Echeverri, MD, Juan Diego**

**Tel: 573315772**

<i>Who's Involved</i>	<i>Company</i>
Self	None

*Relationship Involvement*  
NONE

All sessions will be located in the **Grand Ballroom** unless otherwise noted.  
Speakers and times are subject to change.

## 2014 IPPS Annual Fall Meeting Program Schedule

### Wednesday, October 22, 2014

4:00 p.m. – 6:00 p.m.      **Registration/Information Desk Open**  
*Location: Grand Ballroom Foyer*

### Thursday, October 23, 2014

7:00 a.m. – 5:00 p.m.      **Registration/Information Desk Open**  
*Location: Grand Ballroom Foyer*

7:00 a.m. – 8:00 a.m.      **Breakfast**  
*Location: State Ballroom*

10:00 a.m. – 6:30 p.m.      **Exhibit Hall Open**  
*Location: State Ballroom*

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#### **BASICS COURSE 8:00 a.m. – 5:00 p.m. (Optional Concurrent Pre-Conference Session)**

8:00 a.m. – 8:30 a.m.      **Introduction to the Physiology of Chronic Pain**  
Bradford W. Fenton, MD, PhD  
*Summa Physicians  
Akron, OH*

8:30 a.m. – 9:00 a.m.      **Evaluation of CPP: Essential Elements of the History & Gyn Exam**  
M. Jean Uy-Kroh, MD  
*Cleveland Clinic  
Cleveland, OH*

9:00 a.m. – 9:50 a.m.      **Evaluation and Treatment of Musculoskeletal Causes of CPP**  
Kumari A. Hobbs, MD, MSCR  
*New York Pelvic Pain & Minimally Invasive Gynecologic Surgery  
New York, NY*

Jennifer R. Harrington, PT, DPT, WCS, CLT  
*UNC Center for Rehabilitation Care  
Chapel Hill, NC*

9:50 a.m. – 10:05 a.m.      **Discussion**

10:05 a.m. – 10:25 a.m.      **Break**

10:25 a.m. – 11:05 a.m.      **Diagnosis & Treatment of Endometriosis and Other Utero-Ovarian Causes of CPP**  
Matthew Siedhoff, MD, MSCR  
*University of North Carolina  
Chapel Hill, NC*

11:05 a.m. – 11:45 a.m.      **Diagnosis and Treatment of Vulvar Pain**  
Andrea J. Rapkin, MD  
*UCLA School of Medicine  
Los Angeles, CA*

*All sessions will be located in the **Grand Ballroom** unless otherwise noted.  
Speakers and times are subject to change.*

11:45 a.m. – 12:00 p.m.	<b>Discussion</b>
12:00 p.m. – 1:00 p.m.	<b>Lunch on Your Own</b>
1:00 p.m. – 1:35 p.m.	<b>Diagnosis and Treatment of Abdominal and Pelvic Peripheral Neuropathies</b> Mario Castellanos, MD <i>St. Joseph's Hospital and Medical Center Phoenix, AZ</i>
1:35 p.m. – 2:15 p.m.	<b>Diagnosis and Treatment of Urologic Causes of CPP</b> Ann L. Oldendorf, MD <i>University of Michigan Health System Ann Arbor, MI</i>
2:15 p.m. – 2:50 p.m.	<b>Diagnosis and Treatment of Functional Bowel Disorders</b> Darren M. Brenner, MD <i>Northwestern University Feinberg School of Medicine Chicago, IL</i>
2:50 p.m. – 3:05 p.m.	<b>Discussion</b>
3:05 p.m. – 3:25 p.m.	<b>Break</b>
3:25 p.m. – 4:05 p.m.	<b>Medical and Behavioral Therapies for Chronic Pain</b> Steven P. Stanos, Jr., DO <i>Workers Compensation Physician Practice, RIC Chicago, IL</i>
4:05 p.m. – 4:45 p.m.	<b>Psychological Aspects of Living with CPP: Evaluation and Treatment of Comorbid Anxiety and Depression</b> Laurie Keefer, PhD <i>Northwestern University Feinberg School of Medicine Chicago, IL</i>
4:45 p.m. – 5:00 p.m.	<b>Discussion</b>

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**RESEARCH COURSE 12:30 p.m. – 5:20 p.m. (Optional Concurrent Pre-Conference Session)**

***Introduction to Research and Publication Methodology for Pain Research***  
*Located in the Spire Parlor*

12:30 p.m. – 12:45 p.m.	<b>Welcome &amp; Instructions and Faculty Introductions</b> Georgine Lamvu, MD, MPH, FACOG <i>Advanced Minimally Invasive Surgery and Gynecology Orlando, FL</i>
12:45 p.m. – 1:20 p.m.	<b>Study Design</b> Georgine Lamvu, MD, MPH, FACOG <i>Advanced Minimally Invasive Surgery and Gynecology Orlando, FL</i>

*All sessions will be located in the **Grand Ballroom** unless otherwise noted.  
Speakers and times are subject to change.*

**1:20 p.m. – 2:00 p.m.**

**Measuring Pain Outcomes in Research**

Roger B. Fillingim, PhD  
*University of Florida College of Dentistry  
Gainesville, FL*

**2:00 p.m. – 2:40 p.m.**

**How to Write a Good Paper**

Khalid S. Khan, MMed, MRCOG, MSc, FCPS, MBBS  
*Barts and The London School of Medicine and Dentistry  
London, UK*

**2:40 p.m. – 2:55 p.m.**

**Break**

**2:55 p.m. – 3:35 p.m.**

**The Basics of a Good Grant**

Roger B. Fillingim, PhD  
*University of Florida College of Dentistry  
Gainesville, FL*

**3:35 p.m. – 4:35 p.m.**

**Work in Progress Round Tables and Q&A**

Moderators: Roger B. Fillingim, PhD  
*University of Florida College of Dentistry  
Gainesville, FL*

Fred M. Howard, MD, MS, FACOG  
*University of Rochester School of Medicine & Dentistry  
Rochester, NY*

Khalid S. Khan, MMed, MRCOG, MSc, FCPS, MBBS  
*Barts and The London School of Medicine and Dentistry  
London, UK*

Georgine Lamvu, MD, MPH, FACOG  
*Advanced Minimally Invasive Surgery and Gynecology  
Orlando, FL*

Ruth H.N. Nguyen, PhD  
*University of Minnesota Division of Epidemiology & Community Health  
Minneapolis, MN*

Frank F. Tu, MD, MPH  
*Skokie Hospital  
Skokie, IL*

Christin S. Veasley, BSc  
*Chronic Pain Research Alliance  
N. Kingstown, RI*

**4:35 p.m. – 5:05 p.m.**

**Where to Look for Funding**

Christin S. Veasley, BSc  
*Chronic Pain Research Alliance  
N. Kingstown, RI*

**5:05 p.m. – 5:20 p.m.**

**Q&A and Closing**



All sessions will be located in the **Grand Ballroom** unless otherwise noted.  
Speakers and times are subject to change.

- 5:00 p.m. – 6:30 p.m.      **Welcome Reception**  
*Location: State Ballroom*
- 6:30 p.m. – 9:30 p.m.      **IPPS Board of Directors Meeting**  
*Location: Hancock Parlor*

## Friday, October 24, 2014

- 7:00 a.m. – 5:00 p.m.      **Registration/Information Desk Open**  
*Location: Grand Ballroom Foyer*
- 7:00 a.m. – 8:00 a.m.      **Breakfast**  
*Location: State Ballroom*
- 7:00 a.m. – 4:00 p.m.      **Exhibit Hall Open**  
*Location: State Ballroom*

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### IPPS Annual Fall Meeting on Chronic Pelvic Pain

- 7:50 a.m. – 7:55 a.m.      **Welcome & Announcements**  
Sarah D. Fox, MD  
2014 Program Co-Chair  
*Women & Infant Hospital  
Providence, RI*
- 7:55 a.m. – 8:00 a.m.      **Presidential Address**  
Frank F. Tu, MD, MPH  
*Skokie Hospital  
Skokie, IL*
- 8:00 a.m. – 8:50 a.m.      **C. Paul Perry Memorial Lecture:**  
**Creating Research Networks to Improve Outcomes in Pelvic Pain**  
Khalid S. Khan, MMed, MRCOG, MSc, FCPS, MBBS  
*Barts and The London School of Medicine and Dentistry  
London, UK*
- 8:50 a.m. – 9:30 a.m.      **The Role of Combined Hormonal Contraceptives and Vulvodynia: Finally Putting This Controversy to Bed\***  
Andrew T. Goldstein, MD, IF, FACOG  
*The Centers for Vulvovaginal Disorders  
Washington, DC*
- 9:30 a.m. – 9:45 a.m.      **Q&A**
- 9:45 a.m. – 10:15 a.m.      **Break & Poster Viewing Session I**  
*Location: State Ballroom*
- 10:15 a.m. – 10:55 a.m.      **Injection Strategies for Chronic Pelvic Pain**  
Jennifer Gunter, MD  
*Kaiser Medical Center  
San Francisco, CA*

All sessions will be located in the **Grand Ballroom** unless otherwise noted.  
Speakers and times are subject to change.

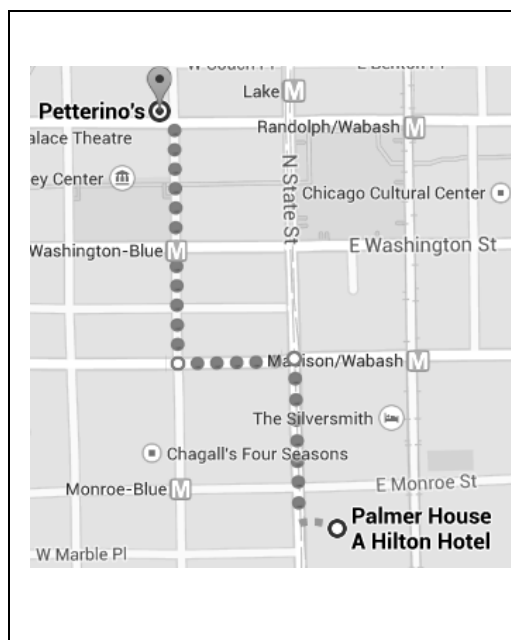
- 10:55 a.m. – 11:35 a.m.**      **Surgical Mesh: Avoiding and Managing Complications**  
Adam Gafni-Kane, MD  
*NorthShore University HealthSystem*  
*Skokie, IL*
- 11:35 a.m. – 11:50 a.m.**      **Q&A**
- 11:50 a.m. – 1:20 p.m.**      **Lunch on Your Own**
- 11:50 a.m. – 1:20 p.m.**      **Roundtable Lunch with Experts (Optional Event)**  
*Location: Monroe Room*

Table	Presenter/Moderator(s)	Topic
1	Sarah D. Fox, MD Dustienne L. Miller, CYT, PT, MS, WCS	CAM Therapies for Pain
2	Amy Benjamin, MD Juan Diego Villegas-Echeverri, MD	Endometriosis
3	Jeannette M. Potts, MD Stacey J. Futterman, PT, MPT, WCS	Male Pelvic Pain
4	Charles W. Butrick, MD Hina Sheth, MS, PT, OCS, MTC	Mesh and Complications
5	Colleen M. Fitzgerald, MD, MS Amy Stein, DPT, BCB-PMD, IF	Musculoskeletal
6	Mark Conway, MD Stephanie Prendergast, MPT	Pudendal Nerve Issues
7	Andrew T. Goldstein, MD, IF, FACOG Heather Jeffcoat, DPT	Female Sexual Function and CPP
8	Mario Castellanos, MD Dee Hartmann, PT, DPT	Visceral Pain
9	Andrea J. Rapkin, MD Tracy Sher, MPT, CSCS	Vulvar Pain
10	Bradford W. Fenton, MD, PhD Carolyn Vandyken, PT	Central Sensitization

- 1:20 p.m. – 2:00 p.m.**      **The Role of Resilience in Chronic Pain**  
Afton L. Hassett, PsyD  
*University of Michigan Chronic Pain and Fatigue Research Center*  
*Ann Arbor, MI*
- 2:00 p.m. – 2:35 p.m.**      **Sexual Function in the Patient with Chronic Pelvic Pain**  
Leah S. Millheiser, MD, FACOG, IF  
*Stanford University School of Medicine*  
*Stanford, CA*
- 2:35 p.m. – 3:15 p.m.**      **Integrating Central Sensitization into Clinical Practice**  
Carolyn Vandyken, PT  
*The Centre for Pelvic Health, Lifemark Health*  
*Cambridge, Ontario*
- 3:15 p.m. – 3:30 p.m.**      **Q&A**
- 3:30 p.m. – 4:00 p.m.**      **Break & Poster Viewing Session I**  
*Location: State Ballroom*

All sessions will be located in the **Grand Ballroom** unless otherwise noted.  
Speakers and times are subject to change.

- 4:00 p.m. – 4:25 p.m.**      **Journal Club: Endometriosis and Chronic Pelvic Pain: Is It All in Her Head? Unraveling Central Neural Mechanisms in Endometriosis and Chronic Pelvic Pain**  
Sawsan As-Sanie, MD, MPH  
*University of Michigan  
Ann Arbor, MI*
- 4:25 p.m. – 4:50 p.m.**      **Journal Club: Pain Sensitivity and Psychosocial Factors in Female Pelvic Pain: Clinical Implications for Assessment and Treatment**  
Meryl J. Alappattu, PT, DPT, PhD  
*University of Florida Department of Physical Therapy  
Gainesville, FL*
- 4:50 p.m. – 5:00 p.m.**      **Q&A**
- 5:00 p.m. – 6:00 p.m.**      **Poster Viewing Session II**  
*Location: State Ballroom*
- 6:00 p.m. – 8:00 p.m.**      **2014 IPPS Fundraising Event**  
*Location: Petterino's Restaurant, 150 N. Dearborn Street, Chicago*



### WALKING DIRECTIONS FROM PALMER TO PETTERINO'S

**PALMER HOUSE HILTON**  
17 E Monroe St.

1. Head **NORTH** on South State Street toward East Monroe Street
2. Turn **LEFT** onto West Madison Street
3. Turn **RIGHT** onto North Dearborn Street
4. The restaurant will be on the left

**PETTERINO'S**  
150 N Dearborn St.

Tickets to the 2014 IPPS Fundraising Event Cocktail Party will be available onsite at the **IPPS Registration Desk at \$105 each**. The cocktail party will include **delicious appetizers** as well as **all you can eat** and all the wine, beer and non-alcoholic beverages you can drink! Join us in this opportunity to **support IPPS and network** with colleagues.

**WE HOPE TO SEE YOU THERE!**

All sessions will be located in the **Grand Ballroom** unless otherwise noted.  
Speakers and times are subject to change.

## Saturday, October 25, 2014

**7:00 a.m. – 5:30 p.m.**      **Registration/Information Desk Open**  
*Location: Grand Ballroom Foyer*

**6:15 a.m. – 7:15 a.m.**      **Yoga for Pelvic Pain**  
*Location: Water Tower Parlor*  
Dustienne L. Miller, MSPT  
*Flourish Physical Therapy*  
*Boston, MA*

**7:00 a.m. – 8:00 a.m.**      **Breakfast**  
*Location: State Ballroom*

**7:00 a.m. – 4:00 p.m.**      **Exhibit Hall Open**  
*Location: State Ballroom*

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### IPPS Annual Fall Meeting on Chronic Pelvic Pain

**7:50 a.m. – 8:00 a.m.**      **Welcome & Announcements**  
Sarah D. Fox, MD  
2014 Program Co-Chair  
*Women & Infant Hospital*  
*Providence, RI*

**8:00 a.m. – 8:50 a.m.**      **James E. Carter Memorial Lecture:**  
**Imagine Your Pelvic Floor as a Twisted Door, How Well Would It Open & Close?**  
**New Perspectives from The Integrated Systems Model for Women's Health**  
Diane Lee, BSR, FCAMPT, CGIMS  
*Diane Lee & Associates Consultants in Physiotherapy*  
*South Surrey, British Columbia*

**8:50 a.m. – 9:35 a.m.**      **Functional Nausea and Vomiting**  
Gene Z. Chiao, MD  
*NorthShore University HealthSystem*  
*Highland Park, IL*

**9:35 a.m. – 9:50 a.m.**      **Q&A**

**9:50 a.m. – 10:20 a.m.**      **Break & Poster Viewing Session II**  
*Location: State Ballroom*

**10:20 a.m. – 11:30 a.m.**      **Opioid Therapy in Chronic Pain Conditions: A Call for Sanity**  
R. Norman Harden, MD  
*Rehabilitation Institute of Chicago*  
*Chicago, IL*

Thomas C. Chelimsky, MD  
*Medical College of Wisconsin*  
*Milwaukee, WI*

**11:30 a.m. – 11:50 a.m.**      **Q&A**

All sessions will be located in the **Grand Ballroom** unless otherwise noted.  
Speakers and times are subject to change.

11:50 a.m. – 1:05 p.m.	<b>Lunch on Your Own</b>
11:50 a.m. – 1:05 p.m.	<b>Committee Fair</b> <i>Location: Monroe Room</i>
1:05 p.m. – 1:50 p.m.	<b>New Developments in the Management of Painful Bladder and Interstitial Cystitis</b> Christopher K. Payne, MD <i>Vista Urology &amp; Pelvic Pain Partners San Jose, CA</i>
1:50 p.m. – 2:25 p.m.	<b>A Non-Urologic Approach to Urologic Pelvic Pain</b> Jeannette M. Potts, MD <i>Vista Urology &amp; Pelvic Pain Partners San Jose, CA</i>
2:25 p.m. – 3:00 p.m.	<b>Altered Brain Motor Control Networks in Men with CPP: A Trans-MAPP Neuroimaging Study</b> Jason J. Kutch, PhD <i>University of Southern California Los Angeles, CA</i>
3:00 p.m. – 3:15 p.m.	<b>Q&amp;A</b>
3:15 p.m. – 3:45 p.m.	<b>Break</b>
3:45 p.m. – 4:00 p.m.	<b>Oral Abstract Session I: The Epidemiology of Chronic Pelvic Pain in Women</b> Abimbola Ayorinde, BSc, MSc <i>University of Aberdeen Institute of Applied Health Sciences Aberdeen, United Kingdom</i>
4:00 p.m. – 4:15 p.m.	<b>Oral Abstract Session II: Differences in the Biometry and the Behavior of the Pelvic Floor Muscles Between Women With and Without Provoked Vestibulodynia Assessed by 3D Transperineal Ultrasound Imaging</b> Stephanie Thibault-Gagnon, BSc, PT <i>Queen's University Kingston, Ontario</i>
4:15 p.m. – 4:30 p.m.	<b>Q&amp;A</b>
4:30 p.m. – 4:45 p.m.	<b>Meeting Awards</b>
4:45 p.m. – 5:00 p.m.	<b>Closing Remarks</b>
5:00 p.m. – 5:30 p.m.	<b>Annual Business Meeting</b>

All sessions will be located in the **Grand Ballroom** unless otherwise noted.  
Speakers and times are subject to change.

## Sunday, October 26, 2014

7:00 a.m. – 3:00 p.m.      **Registration/ Information Desk Open**  
*Location: Grand Ballroom Foyer*

7:00 a.m. – 8:00 a.m.      **Breakfast**  
*Location: Grand Ballroom Foyer*

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### IPPS Post-Conference Course New Perspectives from The Integrated Systems Model for Women's Health

Diane Lee, BSR, FCAMPT, CGIMS  
*Diane Lee & Associates Consultants in Physiotherapy*  
*South Surrey, British Columbia*

8:00 a.m. – 9:30 a.m.      **Lecture 1: Treating the Whole Person – The Integrated Systems Model for Pain & Disability (Lee & Lee) An Evidence-Based Approach to Optimize Strategies for Function and Performance**

9:30 a.m. – 9:45 a.m.      **Discussion**

9:45 a.m. – 10:00 a.m.      **Break**

10:00 a.m. – 12:00 p.m.      **Lecture 2: New Perspectives from The Integrated Systems Model for Treating Women with Pelvic Girdle Pain, Urinary Incontinence, Pelvic Organ Prolapse**

12:00 p.m. – 12:15 p.m.      **Discussion**

12:15 p.m. – 1:00 p.m.      **Light Lunch**

1:00 p.m. – 3:00 p.m.      **Lecture 3: Split Down the Middle? Diastasis Rectus Abdominis and the Implications for Form & Function of the Trunk After Pregnancy**

\* Please note this presenter is being filmed for a documentary with the permission of IPPS. Those who enter this one lecture are consenting to being filmed and waiving any privacy claims.

**Disclaimer:** Statements, opinions and results of studies contained in the program are those of the presenters/authors and do not reflect the policy or position of the IPPS, nor does the IPPS provide any warranty as to their accuracy or reliability.

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## Speaker Biosketches

(in alphabetical order)

### **Meryl J. Alappattu, PT, DPT, PhD**

Dr. Alappattu is a licensed physical therapist in the state of Florida and a postdoctoral research fellow in the Pain Research and Intervention Center of Excellence at the University of Florida.

After graduating with a clinical doctorate in physical therapy from the University of Florida in 2008, she completed a physical therapy residency in oncology rehabilitation at the University of Florida Health. She earned her PhD in rehabilitation science at the University of Florida in 2014.

Dr. Alappattu has been the recipient of multiple awards from the Foundation for Physical Therapy and is a member of various organizations, including the American Pain Society and IPPS.

### **Sawsan As-Sanie, MD, MPH**

Dr. As-Sanie is currently an Assistant professor and director of the Minimally Invasive Gynecologic Surgery Program and Fellowship at the University of Michigan, Department of Obstetrics and Gynecology.

After graduating with an MD from the Johns Hopkins University School of Medicine with honors in 1998, she completed her residency in obstetrics and gynecology at the Case Western Reserve University School of Medicine. Dr. As-Sanie then earned her MPH in epidemiology from the University of North Carolina School of Public Health and completed a clinical fellowship in advanced laparoscopy and pelvic pain at the UNC Department of Obstetrics and Gynecology.

Dr. As-Sanie is on the editorial board of the *Journal of Minimally Invasive Gynecology* and is a member of various professional societies, including IPPS. She currently serves on the IPPS Board of Directors, and is the 2014 IPPS Annual Meeting program co-chair.

### **Amy Benjamin, MD**

Dr. Benjamin is an assistant professor of obstetrics and gynecology at the University of Rochester in New York, and also the co-director of the Minimally Invasive Gynecologic Surgery Fellowship.

After graduating with her MD from the University of Rochester School of Medicine and Dentistry in 2005, she completed her residency in obstetrics and gynecology at the University in 2009. She then pursued advanced training in gynecologic laparoscopy through an AAGL/SRS fellowship and also received training certification in robotic surgery.

Dr. Benjamin's primary interests are in endometriosis, chronic pelvic pain and minimally invasive gynecologic procedures.

### **Darren M. Brenner, MD**

Dr. Brenner is an assistant professor of medicine-gastroenterology and hepatology and surgery at the Northwestern University Feinberg School of Medicine. He is board-certified and licensed by the American Board of Internal Medicine in internal medicine and gastroenterology. He is an assistant professor of medicine and surgery at the Northwestern University Feinberg School of Medicine.

After earning his MD from the University of Chicago Pritzker School of Medicine in 2002, he completed his residency in internal medicine as well as his fellowship in gastroenterology at the University of Michigan Health System.

His professional interests include anal incontinence, anorectal disease, colonoscopy, constipation, endoscopy, pelvic floor disorders and treating gastrointestinal disorders associated with Scleroderma.

## **Charles W. Butrick, MD**

Dr. Butrick is a practicing urogynecologist in Overland Park, who is dedicated to the management of urinary and fecal incontinence, pelvic floor reconstruction and pelvic pain disorders. He is the director of The Urogynecology Center in Overland Park.

After completing his residency at Washington University Barnes Hospital in 1984, he went on to pursue postgraduate training in pelvic floor dysfunction involving multiple preceptorships with urogynecologists and urologists around the country.

His area of special interest is neuro-urology as it relates to pelvic pain disorders and bladder dysfunction. Currently he is involved in research topics such as hypertonic pelvic floor dysfunction, interstitial cystitis and office-based treatment of stress urinary incontinence. Dr. Butrick is a past president of IPPS.

## **Mario Castellanos, MD**

Dr. Castellanos is a gynecologic surgeon in the Division of Surgery and Pelvic Pain at St. Joseph's Hospital and Medical Center. He is an assistant professor of obstetrics and gynecology at Creighton University School of Medicine and a clinical instructor of obstetrics and gynecology at the University of Arizona College of Medicine.

After receiving his MD from the University of Texas Southwestern in Dallas, he completed his residency in obstetrics and gynecology at Parkland Hospital and a fellowship in Minimally Invasive Gynecologic Surgery and Chronic Pelvic Pain at St. Joseph's.

His expertise includes pudendal neuralgia, pelvic congestion syndrome, pelvic floor muscle spasms, interstitial cystitis and pain related to vaginal mesh procedures. He has special skills in pudendal nerve decompression surgery, ultrasound-guided peripheral nerve blocks and Botox trigger point injections. Dr. Castellanos is an active member of the AAGL and the International Pelvic Pain Society.

## **Thomas C. Chelimsky, MD**

Dr. Chelimsky is a professor of neurology at the Medical College of Wisconsin. After graduating cum laude from Harvard University and obtaining his MD from Washington University in 1983, he completed both his residency in internal medicine and neurology and fellowship in autonomic research at the Mayo Clinic. He is certified by the American Board of Internal Medicine, the American Board of Neurology and Psychiatry and the American Board of Electrodiagnostic Medicine. He has added qualifications in clinical neurophysiology and pain management.

Dr. Chelimsky is a member of various professional organizations, including the American Autonomic Society, American College of Physicians and International Association for the Study of Pain. He has published over 40 original articles and more than 50 abstracts. He is an NIH funded investigator.

In addition, he acts as an associate editor of *Frontiers in Autonomic Neuroscience* and is an ad hoc reviewer for a number of different publications, including *Neurology*, *Clinical Autonomic Research* and the *Journal of Neurosurgery*.

## **Gene Z. Chiao, MD**

Dr. Chiao is a gastroenterology consultant at Ravinia Associates in Internal Medicine since 2001. Previously he was at Indiana University in Indianapolis, where he was a clinical associate professor of medicine.

After graduating with an MD from Washington University, he completed his internal medicine residency at University of Pittsburgh, where he was the chief medical resident. He then completed a fellowship in gastroenterology at Northwestern University, where he also did a research fellowship in gastroenterology.

Dr. Chiao is a member of the American College of Gastroenterology, American Gastroenterological Association and American Medical Association.



## **Mark Conway, MD**

Dr. Conway is currently the medical director of maternal child health at St. Joseph Hospital in New Hampshire.

After earning his MD from New York Medical College, he completed his residency in obstetrics and gynecology at the University of Illinois at Chicago and Michael Reese Medical Center in Chicago.

His special interests include pelvic reconstructive surgery, pelvic pain, especially neuropathic pain, and robotically assisted laparoscopic pelvic surgery. Dr. Conway is a member of OB/GYN Associates of Southern NH and a board member of IPPS.

## **Bradford W. Fenton, MD, PhD**

Dr. Fenton is the medical director of the Pelvic Pain Specialty Center in Ohio, as well as the director of NASA-Summa Neuroscience Center. He is also an associate professor at Northeast Ohio Medical University.

After earning his MD and PhD from Boston University School of Medicine, he completed his internship at East Carolina University and his residency in obstetrics and gynecology at Georgetown University Hospital.

He is a member of IPPS, American College of Obstetrics and Gynecology and the Society for Neuroscience, among others. Dr. Fenton received the best abstract award at IPPS annual meetings in 2010 and 2011.

## **Roger B. Fillingim, PhD**

Dr. Fillingim is a distinguished professor at the University of Florida College of Dentistry and director of the UF Pain Research and Intervention Center of Excellence. He is also a past president of the American Pain Society.

He earned his PhD from the University of Alabama at Birmingham. His research endeavors to identify the mechanisms and clinical implications of individual differences in pain responses. Dr. Fillingim has received numerous grants from the NIH, and he currently serves as PI on a MERIT Award from the National Institute on Aging.

He has published more than 200 scientific articles. He has received several awards, including a University of Florida Research Foundation Professorship and the 2009 Wilbert E. Fordyce Clinical Investigator Award from the American Pain Society.

## **Colleen M. Fitzgerald, MD, MS**

Dr. Fitzgerald is the medical director for the Chronic Pelvic Pain Program at Loyola University Health System in Maywood, IL. She is also an associate professor in the Department of Obstetrics & Gynecology, Division of Female Pelvic Medicine and Reconstructive Surgery at Loyola University Chicago Stritch School of Medicine.

Dr. Fitzgerald specializes in physical medicine and rehabilitation in women; her medical interests include pelvic pain, pregnancy-related musculoskeletal medicine and pain, postpartum pain and pelvic floor dysfunction.

After receiving her MD from Northwestern University Feinberg School of Medicine, she completed her post-graduate training at the Rehabilitation Institute of Chicago and Northwestern University Feinberg School of Medicine, where she served as chief resident.

Dr. Fitzgerald is an IPPS board member and an active member of the American Academy of Physical Medicine and Rehabilitation, the Association of Academic Physiatrists, the American Urogynecologic Society and the International Pelvic Pain Society. She serves on the Advisory Council for the Women's Health Foundation in Chicago.

## **Sarah D. Fox, MD**

Dr. Fox earned her MD from the Robert Wood Johnson Medical School in New Jersey. She completed her residency in obstetrics and gynecology at Allegheny University in Pittsburgh, and her fellowship in urogynecology at St. George's Hospital in London.

Dr. Fox developed an interest in pelvic pain after working with patients with interstitial cystitis and joined the Ambulatory Division at Women & Infants Hospital to open a multidisciplinary Chronic Pelvic Pain Clinic. She has special interests in medical and alternative management of pelvic pain as well as resident education. She has lectured nationally and internationally about pelvic pain.

Dr. Fox is the Interim Medical Director of the Women's Primary Care Center at Women and Infants Hospital. She is actively involved in advocacy, testifying in both Rhode Island and Washington D.C. about women's reproductive health. She is also the 2014 IPPS vice president and program co-chair.

## **Stacey J. Futterman, PT, MPT, WCS**

Ms. Futterman is BCB-PMD certified and owner of 5 Point Physical Therapy in New York, a specialty physical therapy clinic. She is also a faculty member of Herman & Wallace Pelvic Rehabilitation Institute.

She earned her master of physical therapy from the NOVA Southeastern University in Florida, and is an active APTA and Women's Health Section member. She was board-certified in Women's Health APTA in 2012.

## **Dr. Adam Gafni-Kane, MD**

Dr. Gafni-Kane is a clinical assistant professor of obstetrics and gynecology at the NorthShore University HealthSystem. After earning his MD at Yale University, he completed an OB-GYN residency at Yale-New Haven Hospital and then a fellowship in female pelvic medicine and reconstructive surgery (urogynecology) at the NorthShore University HealthSystem/University of Chicago. He is a Diplomate of the American Board of Obstetricians and Gynecologists and is board certified in female pelvic medicine and reconstructive surgery.

## **Andrew T. Goldstein, MD, IF, FACOG**

Dr. Goldstein is the director of the Centers for Vulvovaginal Disorders in Washington D.C. and New York City, and board certified by the American Board of Obstetrics and Gynecology. He is a fellow of the International Society for the Study of Vulvovaginal Disease and is on the National Vulvodynia Association's Medical Advisory Board.

After earning his MD from the University of Virginia School of Medicine, he pursued his internship and residency in obstetrics and gynecology at the Beth Israel Medical Center.

He is actively involved in research and has published more than 75 peer-reviewed abstracts, papers, and chapters on lichen sclerosus, lichen planus and vulvar vestibulitis syndrome. He is an associate editor of the *Journal of Sexual Medicine*, *The Female Patient* and *Current Sexual Health Reports*, and has co-authored three books.

## **Jennifer Gunter, MD**

Dr. Gunter is the director for the Kaiser Permanente Center for Pelvic Pain and Vulvovaginal Disorders out of San Francisco. She is board certified by the American Board of Obstetrics and Gynecology, American Board of Physical Medicine and Rehab and American Board of Pain Medicine.

After earning her MD at the University of Manitoba Faculty of Medicine in Canada, she completed her internship and residency at University of Western Ontario then her fellowship in infectious diseases at University of Kansas Medical Center.

She is a member of various professional organizations, including American College of Obstetrics and Gynecology, American Society for Colposcopy and Cervical Pathology and IPPS.

## **R. Norman Harden, MD**

Dr. Harden is the director of the Center for Pain Studies at Rehabilitation Institute of Chicago and professor in the departments of physical medicine and rehabilitation and physical therapy and human movement science at Northwestern University.

After earning his MD from the Medical College of Georgia, he completed his residency in neurology at the Medical University of South Carolina and fellowship in pain control at the Pain Control and Rehabilitation Institute of Georgia.

He is a member of various professional organizations, including the American Pain Society and International Association for the Study of Pain. Dr. Harden also has several editorial responsibilities, including serving as senior associate editor of *Pain Medicine*.

## **Jennifer R. Harrington, PT, DPT, WCS, CLT**

Dr. Harrington is a physical therapist at UNC Healthcare, where she started the Women's and Men's Health Physical Therapy Program.

After receiving her MPT and DPT from the University of North Carolina at Chapel Hill, she pursued a residency in Women's Health Physical Therapy at Centers for Rehab Services in Pittsburgh, PA.

Her particular interests are in the role of hip mechanics as it applies to pelvic floor dysfunction, pelvic pain and sexual dysfunction, as well as pelvic floor dysfunction in collegiate and professional athletic populations.

## **Dee Hartmann, PT, DPT**

Dr. Hartmann is the owner and director of Dee Hartmann Physical Therapy in Chicago, a physical therapy outpatient facility specializing in chronic pain dysfunction and women's health. She has been practicing physical therapy for over 35 years.

For more than a decade after graduating from the Northwestern University Medical School of Physical Therapy and St. Ambrose University with her DPT, she instructed courses on issues associated with vulvodynia, pelvic floor dysfunction, pelvic pain and women's health.

She is an active member of the National Vulvodynia Association, the American Physical Therapy Association and International Society for the Study of Women's Sexual Health, among others.

## **Afton L. Hassett, PsyD**

Dr. Hassett is a licensed clinical psychologist and an associate research scientist in the Department of Anesthesiology at the University of Michigan Medical School in the Chronic Pain & Fatigue Research Center.

Over the last 12 years, she has conducted related research exploring the role of psychological and affective factors in chronic pain conditions like fibromyalgia, osteoarthritis and chronic low back pain.

Currently, she is the organizational leader of the Division of Positive Health for the International Positive Psychology Association and sits on the editorial board of *Applied Psychology: Health & Well-Being* and *Regional Anesthesia and Pain Medicine*.

## **Kumari A. Hobbs, MD, MSCR**

After graduating with an MD from the New York University School of Medicine, she completed her internship and residency at NYU Medical Center, where she received the Laparoscopic Surgery Award as a graduating senior resident in 2012.

She finished her fellowship in advanced laparoscopy and pelvic pain at the University of North Carolina at Chapel Hill, where she also earned her MSCR at the UNC Gillings School of Global Public Health.

Dr. Hobbs is currently practicing at New York Pelvic Pain and Minimally Invasive Gynecologic Surgery in New York City.

## **Fred M. Howard, MD, MS, FACOG**

Dr. Howard recently retired from his practice at the University of Rochester Medical Center Department of Obstetrics and Gynecology in New York. He is a professor emeritus at the UR School of Medicine and Dentistry.

After earning his MD from the Vanderbilt University School of Medicine, he completed his residency in obstetrics gynecology at the Fitzsimons Army Medical Center. Dr. Howard served in the U.S. Army Medical Corps from 1976 to 1983, holding the ranks of captain and major.

He is involved with various organizations, including American Pain Society, sits on the editorial board of *The Journal of Minimally Invasive Gynecology* and is chairman of the IPPS board.

## **Heather Jeffcoat, DPT**

Dr. Jeffcoat is the author of *“Sex Without Pain: A Self-Treatment Guide to the Sex Life You Deserve,”* and owner of Fusion Wellness & Physical Therapy.

She specializes in treating orthopaedic and women’s health physical therapy diagnoses with the majority of her practice focusing on treating chronic pelvic pain, especially women experiencing painful intercourse.

Dr. Jeffcoat received her DPT from Duke University and is a BASI-certified pilates teacher and fascial stretch therapist.

## **Laurie Keefer, PhD**

Dr. Keefer is a health psychologist at Northwestern Medicine Group and an associate professor of medicine at the Northwestern University Feinberg School of Medicine in the Division of Gastroenterology and Hepatology. She is also the director of clinical research and director of the Center for Psychosocial Research in GI at the university.

After earning her MA and PhD in clinical psychology from the University of Albany, State University of New York, she completed both her residency and fellowship at Rush University Medical Center in Chicago.

Dr. Keefer is an elected council member of the American Neurogastroenterology and Motility Society, where she also sits on the editorial board, and is a member of various professional societies.

## **Khalid S. Khan, MMed, MRCOG, MSc, FCPS, MBBS**

Dr. Khan is a professor of women’s health and clinical epidemiology at Barts and the London School of Medicine, and editor-in-chief of *BJOG: An International Journal of Obstetrics and Gynaecology*. He is also the associate editor of *Evidence-based Medicine*. He graduated from medical school in 1989.

He has published over 200 peer-reviewed journal articles making contributions in systematic reviews (meta-analyses), trails of treatments and tests, health technology assessments and evaluation of educational methods. His book on evidence-based medicine won the British Medical Association book competition.

## **Jason J. Kutch, PhD**

Dr. Kutch is a co-investigator in the NIH-funded Multidisciplinary Approaches to the Study of Chronic Pelvic Pain (MAPP) Research Network, with a particular focus on understanding brain network mechanisms of altered pelvic floor muscle control in individuals with chronic pelvic pain.

At University of Southern California, he founded the Applied Mathematical Physiology Laboratory (AMPL), which is focused on understanding the neural mechanisms for muscle activation, engineering of non-invasive systems to study human motor function and neuromuscular disorders, particularly chronic pain.

Dr. Kutch received his PhD in applied and interdisciplinary mathematics in 2008 from the University of Michigan, Ann Arbor. His doctoral and post-doctoral work focused on combined computational and experimental approaches to understanding human multi-muscle coordination and muscle synergies.

## **Georgine Lamvu, MD, MPH, FACOG**

Dr. Lamvu is the director of the Fellowship in Advanced Minimally Invasive Surgery and Gynecology at Florida Hospital in Orlando, where she is also medical unit director of gynecology.

After earning her MD from Duke University, she completed her residency in obstetrics and gynecology at the University of North Carolina at Chapel Hill. Dr. Lamvu received her MPH in epidemiology and completed a fellowship in advanced laparoscopy and pelvic pain at UNC in 2003.

Her most current research focuses on chronic pelvic pain, vulvodynia and she is the primary investigator of the National Vulvodynia Association Treatment Registry. Dr. Lamvu is a 2014 IPPS board member.

## **Diane Lee, BSR, FCAMPT, CGIMS**

Ms. Lee is the owner, director, educator and practicing physiotherapist at Diane Lee & Associates Consultants in Physiotherapy in South Surrey, British Columbia.

She graduated with distinction from the University of British Columbia with a bachelor's degree in science of rehabilitation in 1976. She has been a member of the Canadian Physiotherapy Association since 1976, and a fellow of the Canadian Academy of Manipulative Therapy since 1981.

Ms. Lee completed her certification in intramuscular stimulation in 2001. She also serves as an editorial adviser for the *Manual Therapy Journal*, is on the advisory board for Chicago's Woman's Health Foundation and is a professional associate for the School of Rehabilitation Science at McMaster University in Hamilton, Ontario, in Canada.

## **Dustienne L. Miller, CYT, PT, MS, WCS**

Ms. Miller is a board-certified women's clinical health specialist recognized by the American Board of Physical Therapy Specialities. She is also a yoga teacher, having earned her certification from the Kripalu Center for Yoga and Health in Massachusetts.

Prior to establishing her clinical practice, Flourish Physical Therapy in downtown Boston, she danced professionally in New York City for several years, most notably with the National Tour of *Fosse*. With Physioarts, she worked backstage as a physical therapist at several Broadway shows.

Ms. Miller is passionate about the use of yoga in the treatment of pelvic floor dysfunction. She integrates physical therapy and yoga in a holistic model of care, helping individuals navigate through pelvic pain and incontinence to reach a healthy, pain-free life.

## **Leah S. Millheiser, MD, FACOG, IF**

Dr. Millheiser is the director of the Female Sexual Medicine Program at the Stanford University Medical Center (SUMC) in the Division of Gynecologic Specialties and attending Physician at Stanford Hospitals and Clinics. She is also a clinical assistant professor in the SU School of Medicine's Department of Obstetrics and Gynecology.

After receiving her MD at the Northwestern University School of Medicine, she completed her internship and residency at the SUMC.

She is a member of the International Society for the Study of Women's Sexual Health and the American Congress of Obstetricians and Gynecologists.

## **Ruby H.N. Nguyen, PhD**

Dr. Nguyen is an assistant professor at the University of Minnesota's Department of Obstetrics and Gynecology and Division of Epidemiology and Community Health.

After earning her PhD and MHS in epidemiology from the Johns Hopkins University's School of Hygiene and Public Health, she received post-doctoral training at the Johns Hopkins Center for Sexually Transmitted Infections Research and at the National Institutes of Health Environmental Health Sciences.

Dr. Nguyen's primary research area includes population-based epidemiological investigation into the natural history of chronic vulvar pain and the subsequent sequelae of chronic vulvar pain, specifically central nervous system-maintained pain associated with overlapping pain conditions.

## **Ann L. Oldendorf, MD**

Dr. Oldendorf is an assistant professor in the Department of Urology at University of Michigan.

After earning her MD at Southern Illinois University School of Medicine, she pursued her internship in internal medicine at Northwestern University, Evanston Hospital and her residency in urology at the University of Michigan.

Her clinical and research interests include: incontinence, recurrent urinary tract infection, complex pelvic pain and management of interstitial cystitis. Dr. Oldendorf is a member of IPPS, Society of Women in Urology and more.

## **Christopher K. Payne, MD**

Dr. Payne is an emeritus professor of urology at Stanford University, where he was the director of the Division of Female Urology and NeuroUrology for 21 years. His most recent venture is Vista Urology and Pelvic Pain Partners, a joint practice with Dr. Jeannette Potts. The goal is to provide personalized urologic care while continuing to advance their knowledge base through clinical research.

In addition to his expertise in interstitial cystitis/chronic pelvic pain, his clinical interests include pelvic reconstructive surgery for incontinence and prolapse with special emphasis on native tissue repairs. Dr. Payne also has a special interest in obstetric fistulas in the developing world and sits on the board of the Worldwide Fistula Fund.

He attended Vanderbilt University for medical school and completed a urology residency at The Hospital of the University of Pennsylvania in Philadelphia, and a fellowship in female urology, urodynamics, and pelvic reconstructive surgery at UCLA.

## **Jeannette M. Potts, MD**

Dr. Potts is the co-founder and director of Vista Urology and Pelvic Pain Partners in San Jose. She specializes in office-based urology, urological pelvic pain syndromes and psychosexual well-being.

After earning her MD at Case Western Reserve University School of Medicine, she completed her residency in family medicine at the Metro Health Medical Center and her fellowship in urology at the Cleveland Clinic.

Dr. Potts is involved with medical societies, including the International Continence Society, International Prostatitis Collaborative Network and American Urological Association.

## **Stephanie Prendergast, MPT**

Ms. Prendergast received her MPT from the Medical College of Pennsylvania and Hahnemann University. She is co-founder of the Pelvic Health and Rehabilitation Center, which has four locations in California: San Francisco, Oakland, Los Gatos, and Los Angeles. The Pelvic Health and Rehabilitation Center is opening in the Boston area in the spring of 2015.

She co-developed and teaches “De-mystifying Pudendal Neuralgia,” a continuing education course attended by medical professionals around the world.

Ms. Prendergast is internationally recognized in the field of pelvic floor dysfunction, lectures regularly and has numerous publications in textbooks, journals and magazines. She was also the first physical therapist to be the president of IPPS in 2013.

## **Andrea J. Rapkin, MD**

Dr. Rapkin is a professor in the Department of Obstetrics and Gynecology at the David Geffen School of Medicine at the University of California, Los Angeles, and the interim chair. She is the founder and director of the UCLA Pelvic Pain Treatment and Research Program.

After earning her undergraduate degree from Cornell University, she completed her MD at the State University of New York at Buffalo's School of Medicine and residency in OBGYN at the UCLA School of Medicine.

Dr. Rapkin is a member of various professional societies, including the Society for Gynecologic Investigation, the American College of Obstetricians and Gynecologists, American Pain Society, International Association for the Study of Pain, the Sexual Medicine Society of North America and IPPS. She sits on the editorial board of publications like *Journal of the Society for Gynecologic Investigation*, *Journal of Women's Health* and *Contraception and Reproductive Medicine*.

## **Tracy Sher, MPT, CSCS**

Ms. Sher is an orthopedic and pelvic physical therapist and the owner of Sher Pelvic Health and Healing, a private practice in Orlando, Florida. She sees patients locally as well as from out of state and country for a variety of pelvic/pelvic floor diagnoses, with a specialization in complex pelvic pain issues. She is also the founder of Pelvic Guru, a startup blog providing education, research and humor in the area of pelvic health.

She completed her MPT at Northwestern University in Chicago, where she received an award for clinical excellence. Ms. Sher is a member of IPPS, the American Association of Sexuality Counselors, Educators and Therapists, the National Vulvodynia Association and contributes to Pudendal Neuralgia networks.

Her practice interests include treating complex pelvic pain, sexual pain and pudendal neuralgia, and her focus is integrating a whole body treatment approach.

## **Hina Sheth, MS, PT, OCS, MTC**

Ms. Sheth is the owner of Rebalance Physical Therapy. She is a board-certified physical therapist specializing in orthopedics, including spine and pelvic floor rehabilitation. She is an orthopedic clinical specialist through the American Physical Therapy Association and a manual-certified therapist through the University of St. Augustine.

After receiving her MPT from the University of St. Augustine, she moved to New York City, where she specialized in orthopedics with an emphasis on spine and sacroiliac joint dysfunction.

Ms. Sheth is a member of IPPS, National Vulvodynia Association, American Physical Therapy Association and Interstitial Cystitis Network. She continues to work with physicians throughout the Philadelphia health care systems and surrounding suburbs, lecturing on various topics including, foot and ankle injuries, spinal dysfunction and pelvic pain.

## **Matthew Siedhoff, MD, MSCR**

Dr. Siedhoff is the director of the Advanced Laparoscopy & Pelvic Pain Division at University of North Carolina – Chapel Hill. He also directs UNC's Fibroid Care Center, which focuses on laparoscopic hysterectomy and myomectomy for very large and complex myomas.

After medical school at Stanford University and OB/GYN residency training at New York University, he completed an AAGL/SRS minimally invasive gynecologic surgery fellowship at UNC. During his fellowship, he also completed his MS in clinical research through UNC's Gillings School of Public Health, which provided the foundation to work on his research interests in surgical outcomes.

Dr. Siedhoff is actively involved in teaching and is the director of UNC's fellowship and the residency GYN rotation.

## **Steven P. Stanos, Jr., DO**

Dr. Stanos is the national director of the Rehabilitation Institute of Chicago Center for Pain Management, and assistant program director of the multidisciplinary pain fellowship at the Northwestern University Medical School's Feinberg School of Medicine.

After earning his DO from the Nova Southeastern University in Miami, he completed his residency and pain fellowship through the Northwestern University Medical School and Rehabilitation Institute of Chicago.

He is a member of the American Academy of Pain Medicine, American Chronic Pain Association and more. Dr. Stanos was awarded the Mayday Pain & Society Fellowship in 2013. He sits on the editorial board of *Pain News*.

## **Amy Stein, DPT, BCB-PMD, IF**

Dr. Stein is the founder of Beyond Basics Physical Therapy in New York City, specializing in pelvic floor dysfunction, pelvic pain, women's health and manual therapy for men, women and children. Her treatment consists of a multimodal, multidisciplinary approach to each patient's entire well-being.

She received her MPT from Nova Southeastern University in 1999, and her DPT in 2013. Dr. Stein is the author of *"Heal Pelvic Pain,"* which has recently been translated to Spanish. She is also the executive producer of the DVD, *"Healing Pelvic and Abdominal Pain: The Ultimate Home Program for Patients and Guide for Practitioners."* Dr. Stein is one of the founders of the Alliance for Pelvic Pain, a patient-oriented educational retreat.

She is the 2014 IPPS secretary and a member of organizations including ISSWSH, PNA, ICA and APTA Women's Health.



## **Frank F. Tu, MD, MPH**

Dr. Tu is the director of the NorthShore University HealthSystem's Division of Gynecological Pain and Minimally Invasive Surgery, and co-director of the system's Center for Pelvic Health. He is also a clinical associate professor at the University of Chicago Pritzker School of Medicine in the Department of Obstetrics and Gynecology.

He earned his MD magna cum laude from the University of Alabama Birmingham, and completed his residency at Northwestern Memorial Hospital and advanced laparoscopic surgery fellowship at University of North Carolina-Chapel Hill. Dr. Tu has taught courses and published articles on pelvic pain and endoscopic surgery. He is funded by NIDDK to conduct the CRAMPP trial, which studies dysmenorrhea and bladder pain risk. He is the 2014 IPPS president.

## **M. Jean Uy-Kroh, MD**

Dr. Uy-Kroh practices at the Cleveland Clinic's Center for Specialized Women's Health. She is the director of the Chronic Pelvic Pain Program at Women's Health Institute and is an assistant professor of surgery at the clinic's Lerner College of Medicine, Case Western Reserve University School of Medicine.

After earning her MD from Case Western Reserve University's School of Medicine, she completed her residency in obstetrics and gynecology at the MetroHealth Medical Center – Cleveland Clinic combined program. Her specialty interests include: endometriosis, chronic pelvic pain, fibroids, abnormal uterine bleeding, minimally invasive gynecologic surgery and contraceptive care.

## **Carolyn Vandyken, PT**

Ms. Vandyken is a pelvic health physiotherapist. She graduated from McMaster University with a bachelor's in physiotherapy and has practiced in a wide variety of clinical settings, focusing primarily on orthopedics.

She is co-owner of a Canadian-based teaching company, Pelvic Health Solutions, which has taught internationally on the physiotherapy approach for pelvic floor problems. They teach six levels of evidence-based pelvic floor courses for physiotherapists, nurses, doctors, midwives and naturopaths.

## **Christin S. Veasley, BSc**

Ms. Veasley is co-founder and director of the Chronic Pain Research Alliance (CPRA), a research-led advocacy effort dedicated to addressing a cluster of 10 prevalent and poorly understood pain disorders that frequently co-occur and disproportionately affect women (e.g., vulvodynia, interstitial cystitis, fibromyalgia, TMD). With the ultimate goal of advancing timely diagnoses and effective evidence-based medical management of those with these conditions, the CPRA works to promote rigorous scientific research on these disorders, and to translate research findings into educational programs for both the medical-scientific and patient communities. The CPRA accomplishes its goals by working with a variety of invested stakeholders, including leaders from the medical-scientific community, non-profit organizations, Congress and federal health/research agencies.

Ms. Veasley also holds several appointments on federal committees, public-private partnerships and coalitions working to advance our nation's state of pain research, education and care, and most recently served as the executive director of the National Vulvodynia Association.

## **Juan Diego Villegas-Echeverri, MD**

Dr. Villegas-Echeverri is the director of the Advanced Gynecological Laparoscopy and Pelvic Pain Center – ALGIA – at Clinica Comfamiliar in Pereira, Colombia, which has developed a focused care center as well as a fellowship in minimally invasive gynecologic surgery and pelvic pain. He is the 2014 IPPS treasurer.

He attended Colegio Mayor de Nuestra Señora del Rosario in Bogota, where he completed a residency in obstetrics and gynecology from the Hospital Universitario Lorencita Villegas de Santos–Universidad del Rosario. He also completed a fellowship at C. Paul Perry's Pelvic Pain Center in Birmingham, Alabama. In addition, he accomplished his formal training in minimally invasive gynecological surgery at Universidad CES in Medellin, Colombia.

## Oral Abstract Session I

3:45 p.m. – 4:00 p.m. Saturday, October 25, 2014

**THE EPIDEMIOLOGY OF CHRONIC PELVIC PAIN IN WOMEN**Abimbola Ayorinde, BSc, MSc<sup>1</sup>, Siladitya Bhattacharya, MBBS, MD, FRCOG<sup>2</sup> and Gary Macfarlane, BSc (Hons) MBChB PhD CStat MD (Hons) FFPHM<sup>1</sup><sup>1</sup>Epidemiology Group, University of Aberdeen; <sup>2</sup>Obstetrics & Gynaecology, University of Aberdeen

Presented By: Abimbola Ayorinde

**Objectives:** To determine the prevalence of chronic pelvic pain (CPP) in women through the entire adult age range; proportion of women with CPP symptoms relating to neuropathic pain; and factors associated with the reports of CPP.

**Methods:** A cross-sectional postal questionnaire population survey was conducted. 5,300 women ages  $\geq 25$  years were selected from a population sampling frame of the Grampian region, UK. Information on demographics and women's health issues including pregnancy, childbirth and long-standing illnesses was collected. CPP was defined as constant or recurrent pain of  $\geq 6$  months duration, unrelated to pregnancy, intercourse or periods. A 0–10 numeric rating scale (NRS) was used to measure pain intensity. The douleur neuropathique 4 (DN4) was used to identify participants whose pain exhibited neuropathic features. Health-related quality of life was assessed using the 10-item Patient Reported Outcomes Measurements Information System (PROMIS<sup>®</sup>) Global Health Scale, which has two item factors: global physical health (physical functioning, pain, fatigue and physical health) and global mental health (mental health, emotional problems, satisfaction with social activities and quality of life). The Patient Health Questionnaire-9 was used to measure depression. Chalder Fatigue Scale, Sleep Disturbance Scale, Somatic Symptom Scale were included. Logistic regression was used to determine associations with CPP and summarized as Odds Ratios (OR) with 95% Confidence Intervals (CI).

**Results:** A total of 2,088 women returned questionnaires and were eligible for analysis. Median age was 52 years (interquartile range: 42–63). 309 (14.8%) reported CPP within the past three months, of which 68.5% reported moderate to severe pain (NRS  $\geq 4$ ). CPP reports decreased with each year increase in age (OR: 0.97, 95% CI 0.96–0.98): the prevalence was higher among women in their reproductive years, 25–54 years (19.2%) than women in their post-reproductive years (9.6%). Among women with CPP, 17.3% (95% CI 12.2–22.3) reported features of neuropathic pain. Compared to women without CPP, women with CPP were more likely to report poorer physical health (OR: 2.37, 95% CI 1.85–3.04) and poorer mental health (OR: 1.94, 95% CI 1.51–2.48). In a multivariate logistic regression, factors independently associated with CPP were younger age (OR (per one year increase in age): 0.98, 95% CI 0.96–0.99), high levels of fatigue (OR: 1.63, 95% CI 1.11–2.41), reporting of multiple non-pain somatic symptoms (OR: 2.29, 95% CI 1.68–3.12) and poor physical health (OR: 1.70, 95% CI 1.11–2.61).

**Conclusion:** There is high prevalence of CPP through the entire adult age range, although the peak is within the reproductive years. One in six women with CPP reports pain with neuropathic features. The associations with CPP are similar to other regional and widespread (e.g. fibromyalgia) pain conditions. Prospective studies are required to determine predictors of symptom onset and the relationship to other pain conditions. It may be that management strategies used for other chronic pain will be effective for CPP.

**Keywords:** Chronic pelvic pain, women, prevalence

**Summary:** This study offers a broader understanding of the population impact of chronic pelvic pain in women. This is a basis for studying its aetiology and also developing and evaluating management strategies.

## Oral Abstract Session II

4:00 p.m. – 4:15 p.m. Saturday, October 25, 2014

**DIFFERENCES IN THE BIOMETRY AND THE BEHAVIOR OF THE PELVIC FLOOR MUSCLES BETWEEN WOMEN WITH AND WITHOUT PROVOKED VESTIBULODYNIA ASSESSED BY 3D TRANSPERINEAL ULTRASOUND IMAGING**Stephanie Thibault-Gagnon, BScPT<sup>3</sup>, Corrie Goldfinger, PhD, CPsych<sup>2</sup>, Caroline Pukall, PhD, CPsych<sup>2</sup>, Susan Chamberlain, MD<sup>1</sup> and Linda McLean, BSc(PT), PhD<sup>3</sup><sup>1</sup>Department of Obstetrics and Gynaecology, Queen's University; <sup>2</sup>Department of Psychology, Queen's University; <sup>3</sup>School of Rehabilitation Therapy, Queen's University

Presented By: Stephanie Thibault-Gagnon

**Objectives:** Contrasting research findings exist regarding the nature of pelvic floor muscle impairments in women with provoked vestibulodynia (PVD), which may be due to limitations of traditional assessment methods. As a valid, reliable, non-invasive and pain-free assessment tool, three-dimensional (3D) transperineal ultrasound imaging is a promising method for investigating pelvic floor muscle impairments in women with PVD. The aim of this study was to determine if there are measurable differences between women with and without PVD in the biometry and/or behavior of the pelvic floor muscles assessed using 3D transperineal ultrasound imaging.

**Methods:** Thirty-eight women with PVD and 39 asymptomatic controls were imaged using 3D transperineal ultrasound. Images were acquired with the pelvic floor muscles at rest, during maximal voluntary contraction and during maximal effort Valsalva maneuver. Ultrasound images were analyzed offline; the evaluator was blinded to group assignment. The dimensions (area, transverse and antero-posterior diameters) of the levator hiatus were measured for each condition (at rest, at end maximal contraction, at end Valsalva). Differences in measurements between groups (PVD and control) and across conditions (rest, contraction, Valsalva) were assessed in two different ways. First, using separate two-way repeated measures analysis of variance models for each measure and including the interaction between group and condition. Second, using analysis of covariance models that included levator hiatal dimensions at rest as a covariate and group and condition as factors, again including the interaction effect. Where no significant interaction effects were found but where significant group effects existed, Tukey's post-hoc analyses were used to determine group differences. Where significant interaction effects were found, group effects were tested by fixing condition, and condition effects were tested by fixing group. Significance levels were set at of 0.05.

**Results:** In the analysis of variance model, no significant group by condition interaction was found for antero-posterior or transverse diameter, but the interaction was significant for hiatal area ( $p < 0.0005$ ). For all measures, there was a significant condition effect; compared to measures obtained at rest, the hiatal dimensions decreased during contraction ( $p < 0.0005$ ) and increased during Valsalva ( $p < 0.0005$ ). There were significant group effects indicating that, in comparison to controls, women with PVD had smaller transverse diameters ( $p = 0.003$ ) and areas ( $p = 0.003$ ) but not antero-posterior diameters. In the analysis of covariance model, the effect of rest dimensions was significant for all measures ( $p < 0.0005$ ). Significant interaction effects between group and condition were found for transverse diameter ( $p = 0.048$ ) and area ( $p = 0.004$ ). In this analysis, the only significant group effect was seen for hiatal area, where women with PVD showed smaller areas at end Valsalva compared to controls ( $p = 0.001$ ).

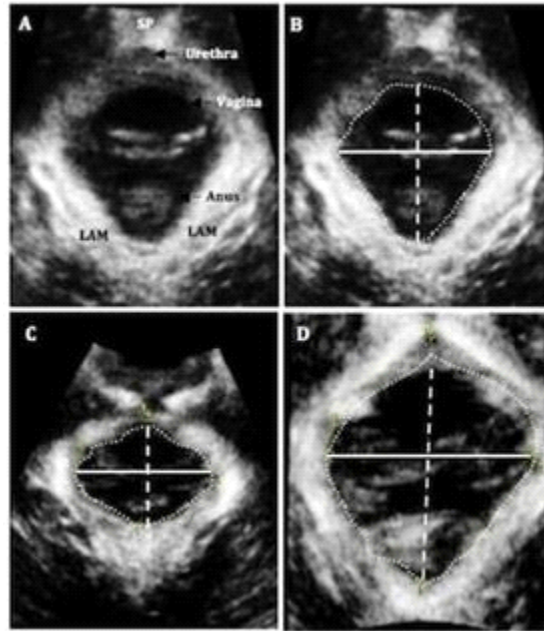
**Conclusion:** In comparison to their control counterparts, women with PVD appear to have smaller levator hiatus' and a lesser capacity to distend their pelvic floor muscles on Valsalva. The state of the pelvic floor muscles at rest appears to significantly influence biometric changes in the pelvic floor muscles during pelvic floor muscle contraction or during Valsalva. Although the underlying causes for differences in levator hiatal biometry have not been determined, women with PVD consistently demonstrate smaller hiatal dimensions than women without PVD. Although muscle tone cannot be evaluated through ultrasound imaging, the findings of this study are consistent with suggestions that the pelvic floor muscles in women with PVD are hypertonic.

**Keywords:** Vulvodynia, provoked vestibulodynia, dyspareunia, ultrasound imaging, pelvic floor muscles

**Summary:** There are measurable differences in pelvic floor muscle biometry and behavior between women with and without PVD, where women with PVD have smaller levator hiatus' and, on Valsalva, do not increase their hiatus to the same extent as controls.

*(continued on next page)*

**Figure.** Ultrasound image of the levator hiatus. A & B) Pelvic floor muscles at rest, C) maximal voluntary contraction, D) maximal effort Valsalva maneuver. The levator hiatal dimensions are identified as follows: antero-posterior diameter (dashed line), transverse diameter (solid line), and area of the levator hiatus (outlined with dotted line). SP; symphysis pubis, LAM; levator ani muscle.



## Poster #1

### THE COMPARISON BETWEEN 2MG DIENOGEST AND HIGH-DOSE MEDROXYPROGESTERONE ACETATE ON ORAL TREATMENT OF ENDOMETRIOSIS

Sung-Tack Oh, MD, PhD

Chonnam University

Presented By: Sung-Tack Oh

**Introduction & Objectives:** The new oral dienogest 2mg is developed to treatment for pain of endometriosis. Therefore, its effect was compared to high-dose (30-60mg) medroxyprogesterone acetate (Provera<sup>®</sup>, MPA) treatment that had been used for pain of endometriosis. The effectiveness for pain of endometriosis was compared, and their side-effects were compared.

**Methods:** The study was performed in 98 patients of oral dienogest treatment for 6 months, and in 120 patients of 30-60mg oral MPA treatment.

**Results:** The disappearance of pain is more than decrease of pain (VAS >3) in dienogest treatment group (67/98, 29/98) compared to 30-60mg MPA treatment group (42/120, 78/120) ( p,0.01 ).

- (1) Irregular bleeding is significantly more in dienogest group than MPA group ( p<0.05).
- (2) Amenorrhea is significantly more in MPA group than dienogest group ( p<0.01 ).
- (3) Weight gain is significantly more in MPA group than dienogest group ( p<0.01 ).
- (4) Breast tenderness is significantly more in MPA group than dienogest group ( p<0.01 ).
- (5) Alopecia is in only dienogest group (4/98).
- (6) Headache is significantly more in dienogest group than MPA group.
- (7) Depression is in only MPA group (63/120)
- (8) General aching in only dienogest group (1/98).

**Conclusion:** Therefore, Dienogest is the higher effective than MPA for pain of endometriosis. However, different side effects are present in dienogest group (e.g. alopecia, headache and general aching), high-dose MPA also useful in those cases.

## Poster #2 – WITHDRAWN

## Poster #3

**THE USEFULNESS OF MINI-LAPAROSCOPIC CYSTECTOMY FOR SMALL ENDOMETRIOMA IN ADOLESCENT WOMEN**Heung Yeol Kim, MD, PhD<sup>2</sup>, Sung-Tack Oh, MD, PhD<sup>1</sup> and Ari Kim, MD<sup>3</sup><sup>1</sup>Chonnam University; <sup>2</sup>Kosin University; <sup>3</sup>Wonkwang University

Presented By: Heung Yeol Kim

**Introduction & Objectives:** Mini-laparoscopy is lesser invasive and more cosmetic than conventional laparoscopy, and simple surgical procedure is possible by development of instrument. It is a very important point in adolescent women. This study was done to evaluate the usefulness of mini-laparoscopic cystectomy for treatment for small endometrioma in adolescence.

**Methods:** The prospective, randomized study was done in 54 adolescence patients with for small endometrioma of lesser than 2 cm diameter. The mini-laparoscopic cystectomy with 3 mm telescope and 3 mm instruments was performed in 18 patients (Group A), and conventional laparoscopic cystectomy with 10 mm telescope and 5 mm instruments was performed in 20 patients (Group B). The anesthesia of laparoscopy was general anesthesia in all 38 cases. The operating time, average operating room costs, average ancillary department costs, instrument and supply costs, and length of hospital stay were compared. Postoperative pain score of each patient was estimated by visual analog scale (VAS). The recurrence was observed for 2 years. The statistical analysis was done by student's t-test and Fisher's exact test.

**Results:** The procedures were performed satisfactorily in all patients of both groups without any difficulty. However in 8 patients (44.4%) of Group A, skillful doctor was necessary due to weak illumination of scope. There was no significant difference in operating time, average operating room costs, average ancillary department costs, instrument and supply costs, or length of hospital stay. Postoperative pain was significantly lesser in Group A than B (VAS 1.3 +/- 1.1 vs. 5.8 +/- 2.1; P <0.01), and patients requiring analgesia were lesser in Group A than B (2/18 vs. 20/20; P <0.01). The satisfaction of operation scar was higher in Group A than B (18/18 vs. 5/20; P <0.01). There was no postoperative complication and no recurrence of cyst for 2 years in both groups.

**Conclusion:** The success rate of mini-laparoscopic cystectomy of cyst wall does not differ from conventional laparoscopy, but acceptability and satisfaction of patients are more and postoperative pain is lesser. Therefore mini-laparoscopy seems to be better than conventional laparoscopy for the management of adolescence patients with small endometrioma of lesser than 2 cm diameter.

## Poster #4

**IS LAPAROSCOPIC CYSTECTOMY POSSIBLE AND SAFE EVEN IN SEVERELY ADHERED ENDOMETRIOMA**Heung Yeol Kim, MD, PhD<sup>2</sup>, Sung-Tack Oh, MD, PhD<sup>1</sup> and Ari Kim, MD<sup>3</sup><sup>1</sup>Chonnam University; <sup>2</sup>Kosin University; <sup>3</sup>Wonkwang University

Presented By: Heung Yeol Kim

**Introduction & Objectives:** Because the possibility of complication due to severe adhesion and anatomic distortion in severely adhered endometrioma of stage IV endometriosis, usually laparotomic cystectomy or adnexectomy is performed. However, if laparoscopic skill is sufficient, laparoscopic cystectomy seems to be not impossible even in stage IV endometriosis and sometimes safer than laparotomy because of optic magnification on my experiences. Therefore, the purpose of this study is to determine the possibility of laparoscopic cystectomy for endometrioma in stage IV endometriosis and to determine the safety by observing the complication rate during or after operation.

**Material & Methods:** Prospective study was done in 88 patients with severely adhered endometrioma of stage IV endometriosis that were diagnosed by diagnostic laparoscopy. However, the patients who have severe abdominal wall adhesion due to previous operation on diagnostic laparoscopy were excluded in this study. Laparoscopic cystectomy were performed in 88 patients after permission of patients with explanation about possibility of complication and conversion to laparotomy. If the bowel or bladder complication was occurred during the operation, laparoscopic operation would be converted to laparotomy immediately. The long-term complication was also observed for one month after operation.

**Results:** There was no laparotomic conversion and no short-term or long-term complication such as urinary or intestinal perforation or obstruction or uncontrolled hemorrhage during or after operation in all 88 patients (0%).

**Conclusion:** Therefore, even in severely adhered endometrioma of stage IV endometriosis, laparoscopic cystectomy is a safe procedure and first-choice of surgical procedure for patients with endometrioma.

## Poster #5

**MULTI-CENTER STUDY TO EVALUATE ACCURACY OF THE MEDICATION EFFICACY DIFFERENTIATION (MED) SCALE TO PREDICT HYDROCODONE EFFICACY VERSUS THE PAIN VAS SCORE.**

Brian Meshkin, Tobore Onojighofia, MD, MPH, Bilikis Akindele, MD, Derrick Holman, MD, John Hubbard and Dan Schwarz, MD, MROC

Proove Biosciences

Presented By: Dan Schwarz

**Introduction:** Proove Biosciences has developed the world's largest practice-based evidence database of personalized pain medicine inclusive of over 25,000 subjects. Clinical investigators assess response to medications using a retrospective assessment, called the Medication Efficacy Differentiation (MED) Scale. The MED scale is a bipolar scaling method to evaluate the degree of therapeutic efficacy. It is a cross-sectional assessment that allows physicians to gauge patient response on a scale of 0 to 5, where 0 equals no response, 1 equals a very poor response, 2 equals a poor response, 3 equals an indeterminate response, 4 equals a good response, and 5 equals a very good response. As a substitute for prospective or longitudinal measurements of effectiveness, the MED Scale provides a retrospective assessment and insights into the degree of medication efficacy.

**Objectives:** The objective of the study is to validate the Medication Efficacy Differentiation (MED) Scale among chronic non-cancer pain patients taking hydrocodone, the most widely prescribed opioid analgesic in the world, across multiple study sites by comparing the MED scale values for hydrocodone in comparison to the Pain Visual Analogue Scale (VAS).

**Method:** Across 23 clinical sites in the United States, investigators completed a MED Scale on 314 patients taking prescription hydrocodone for analgesia. We excluded subjects taking hydromorphone and other daily DEA schedule II opioids in addition to hydrocodone. Patients were divided into 2 groups by MED: poor responders had a score of 0 to 3 while good responders had scores 4 or 5. Pain VAS (Scale 0–10) was also recorded for each study subject to estimate the level of pain perception. Low pain VAS was set at less than or equal to 6 and a high VAS was greater than 6. A chi-squared statistical analysis test was performed using SAS JMP software.

**Results:** Statistical significance was found for the inverse relationship between the Pain VAS and the Medication Efficacy Differentiation (MED) Scale for Hydrocodone ( $p=0.000677$ ). This validation study suggests that the MED Scale accurately identifies therapeutic efficacy for hydrocodone, as measured by analgesic effect. [Sensitivity= 81% (95% CI: 71.72 % to 88.36 %), PPV= 36.5% (95% CI: 29.99 % to 43.38 %), NPV 82.3% (95% CI: 73.55 % to 89.19 %), OR= 2.68 (95% CI: 1.4997 to 4.7949)].

**Conclusion:** This validation study suggests the MED Scale may be a reliable retrospective assessment of therapeutic efficacy for chronic pain patients treated with hydrocodone and other medications. In this study, patients grouped as Good Responders (Scale=4 or 5) to Hydrocodone, are less likely to have high pain perception as measured by the Pain VAS. Further research is required on whether the MED Scale can correlate with the degree of efficacy (difference between 4 and 5), as well as its ability to predict efficacy for other analgesic and pharmaceutical agents.

**Poster #6****STRATEGIES FOR TREATING CHRONIC PELVIC, UROLOGICAL, NEUROLOGICAL AND GI PAIN USING WEARABLE THERAPEUTIC ULTRASOUND**

David Wiseman, PhD, MRPharmS

KevMed, LLC, International Adhesions Society

Presented By: David Wiseman

**Objectives:** To describe strategies for treating chronic pelvic, urologic, neurologic and GI pain using wearable therapeutic ultrasound.

**Methods:** Patients undergoing treatment with PainShield MD for chronic pelvic, urologic, neurologic and GI pain were interviewed regarding placement, timing and frequency of use. Strategies were described to optimize treatment with this device.

**Results:** Patients reported one or more of the following diagnoses: adhesions, endometriosis, IBS, interstitial cystitis, bladder pain, chronic pelvic pain, pudendal or other neuralgia, sacroiliac joint pain.

**Placement of the patch-mounted ultrasound transducer:** Patients preferred placing the patch close to the painful area. Alternatively, patches were placed proximally along the path of innervation of the target area. For IC patients this involved placement at the level of S3 either centrally or over the foramina. Other patients reported placing the patch near L4 or L5. Placement over a referral pathway was also helpful such as periumbilical placement for vaginal pain. With advice from a physical therapist, some patients could locate the patch close to muscles identified to be in spasm. Patients with bowel cramping found relief either by placing directly over the painful area, or over proximal bowel segments.

**Timing:** Patients reported longer relief of muscle spasm by physical therapy if the device was used shortly after a physical therapy session. In other cases, patients initiated ultrasound therapy 1–2 hours before the onset of pain if it was predictable e.g. by time or activity (e.g. eating, bowel movement, car journey). In other cases ultrasound was initiated as soon as a trigger occurred such as intercourse or the beginning of a flare-up.

**Frequency:** Initially patients used the device for one to two sessions of 6.5 hours/24 hours, but once an effect was observed, they titrated the frequency and length of each session to a few hours every few days.

**Optimization:** Patients had been instructed to focus on one area at a time for 2–3 days during initial optimization. About 90% of responding patients did so within 14 days with approximately 80% patients responding to treatment. Some responsive patients reported withdrawing medications and increasing their physical activity without medical supervision.

A few patients, especially those with an element of neuropathic pain, reported burning or painful sensations initially. These could be minimized by reducing the session duration, or by positioning the patch away from the original site. By gradually increasing session time, and/or bring the patch closer to the target area, relief was possible.

**Conclusion:** Painshield MD can be operated simply. Using the strategies described with appropriate supervision, wearable ultrasound can be integrated into existing programs to treat chronic pelvic pain.

**Keywords:** PainShield MD, ultrasound

**Summary:** PainShield<sup>®</sup> MD Wearable Ultrasound has been used for over four years to treat chronic pelvic, urologic, neurologic and GI pain. Treatment strategies are presented to optimize clinical outcome.



## Poster #7

### COMORBIDITY OF CHRONIC PAIN CONDITIONS: INSIGHTS FROM THE UNC PAIN REGISTRY

Kalyani Avva, Jasmine Lewis, BS<sup>2</sup> and Denniz Zolnoun, MD, MPH<sup>1</sup>

<sup>1</sup>Department of Obstetrics and Gynecology; <sup>2</sup>Department of Obstetrics and Gynecology, University of North Carolina at Chapel Hill School of Medicine

Presented By: Kalyani Avva

**Objectives:** Chronic pain disorders affect over half of the American population and cost the economy billions of dollars in lost productivity. Previous research has shown that there is a possible relationship between orofacial pain, chronic headaches and other chronic pain disorders within a female population. The aim of this study was to further investigate possible comorbidity between chronic pelvic pain, orofacial pain, chronic headaches and other chronic pain disorders.

**Methods:** Survey responses were collected from a registry of chronic pain patients, seen at various clinics affiliated with UNC Hospitals, UNC School of Medicine and the UNC School of Dentistry. The data was comprised of 1,473 survey responses that were administered from 2007 to 2013. The survey established whether or not the respondent was formally diagnosed with a pain condition such as Episodic Migraines, Temporomandibular Joint Disorders, Vulvar Vestibulitis, or Fibromyalgia; and if the respondent was diagnosed or self-reported a variety of urogenital, gastrointestinal, musculoskeletal, sleep-related, or psychiatric disorders.

**Results:** Of the 1,204 female registrants, consenting to study participation, 983 (82%) had some form of a pain condition. The average respondent had 2 conditions across the 5 categories, indicating a general comorbidity amongst the chronic pain conditions.

**Conclusion:** The findings of this study show that most patients experiencing some form of chronic pain in one area of the body will also experience pain localized to another area. Therefore, it is important for health care providers to take a holistic approach to chronic pain management versus separate treatment for each condition.

**Keywords:** Chronic pain, comorbidity

**Summary:** A large sample of survey data has shown that there is significant comorbidity between various chronic pain conditions.

## Poster #8 – WITHDRAWN

## Poster #9

**EFFECT OF NK CELLS ACTIVATION IN EXPERIMENTAL ENDOMETRIOSIS**Mary Montenegro, PT, PhD<sup>1</sup>, Per Basse, MD, PhD<sup>1</sup> and Rui Ferriani, MD, PhD<sup>2</sup><sup>1</sup>University of Pittsburgh; <sup>2</sup>University of Sao Paulo

Presented By: Mary Montenegro

**Introduction:** Endometriosis is defined by the presence of endometrial glands and stroma in ectopic locations as pelvic peritoneum, ovaries, and rectovaginal septum. The pathogenesis of endometriosis remains controversial and there are several theories to explain it. Currently there are an increasing number of studies suggesting that changes in immune response are primarily involved on endometriosis development. In this sense, it has been strongly suggested that a fundamental part of immunologic system, the natural killer cells (NK cells), are an important part of this process. NK cells are an important component of non-specific immune defense and have been extensively studied for their ability to defend the organism against infections and malignancy. The NK cells destroy their targets through direct lysis or by the release of cytokines and chemokines. These reactions are carefully balanced and the participation of some cytokines such as interferons  $\alpha$  and  $\beta$  and interleukin 2 (IL2) are essential. Studies have shown a decrease in cytotoxicity of NK cells in peritoneal fluid of women with endometriosis, this reduction could facilitate the attachment of the endometrial cells from retrograde menstrual flow, contributing to the development of endometriosis. However, the consequences of this phenomenon still need to be clarified. To date, no study has assessed if endometriosis lesions could be targeted by NK cells.

**Objectives:** Evaluate the effectiveness of activated NK cells in the development and progression of experimental endometriosis.

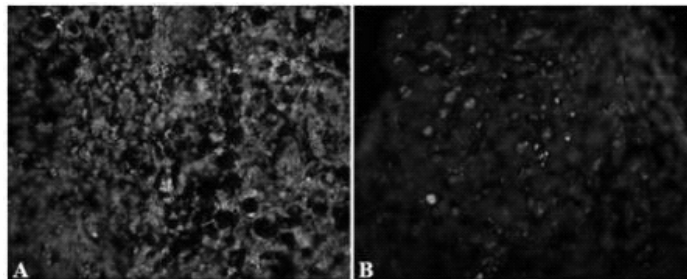
**Methods:** The study was performed at University of Pittsburgh Cancer Institute. Endometriosis induction was made by injection of endometrial tissue fragments. Donor animals were sacrificed and both uterine horns were removed and the endometrial fragments injected via i.p in recipient mice. Each recipient mouse received an equal quantity of tissue (~40 mg). After the 4 weeks necessary for endometriosis lesions establishment, the experimental protocols were started. Animals were divided in 3 experimental groups with 10 animals each. Group 1 received i.v doses of  $5 \times 10^6$  A-NK in 200 $\mu$ l RPMI or PBS (control group); Group 2 received i.p dose of  $5 \times 10^6$  A-NK in 200 $\mu$ l RPMI or PBS (control group); Group 3 received i.p dose of IL2 (0.5 mL RPMI containing 5.000U of IL2). To support the transferred A-NK cells, animals from group 1 and 2 received i.p. injections of 0.5 mL RPMI containing 5.000U/mL of PEG-IL2 at 12 hour intervals during 3 days.

**Results:** Activated NK cells are able to track and infiltrate into endometriosis lesions. Furthermore, NK cells injected via ip clearly have almost twice number of cells recruited compared with animals that received exogenous activated NK cells injected via iv (figure 1).

**Conclusion:** Our results show at least in part that activated NK cells are able to track endometriosis lesions and infiltrate it, and the best way to promote this effect is through the combination of endogenous NK cells and exogenous activated NK cells injected via i.p. For the first time, it was shown that both endogenous as exogenous NK cells are able to track and migrate to endometriosis lesions and are also able to infiltrate into the lesions. This seems to be a very promising result, and if confirmed that activated NK cells are really efficient in killing the endometriosis lesions, maybe in the future we could use this approach as an alternative treatment for women with endometriosis.

**Keywords:** NK cells, endometriosis, IL2

**Summary:** NK cells an essential part of immune system, also seems to be an important piece in management of endometriosis.



Endogenous and exogenous activated NK cells in endometriosis lesions. Endogenous NK cells (green), exogenous NK cells (red): (A) endometriosis lesion from animals that received ip exogenous activated NK cells. (B) endometriosis lesion from animals that received iv exogenous activated NK cells. According to experimental protocol, in all groups the NK cells were activated by PEG-IL2. The slides were immunostained with Hoechst 33342 (for nuclei), NKp46/NCR1 and Alexa 488 donkey anti-goat (for endogenous NK cells) and PE anti-rat CD90.1 specific for identify cells type Thy1.1 (for exogenous NK cells).

## Poster #10

**RELATIONSHIP BETWEEN TENDER POINT TENDERNESS AND VAGINAL ALGOMETER PAIN INTENSITY RATINGS IN WOMEN WITH VESTIBULODYNIA: IMPLICATIONS FOR TREATMENT**

Candace Brown, MSN, PharmD, Adrienne Bonham, MD, MS, Gloria Bachmann, MD, MMS, Jim Wan, PhD, Ronald Wood, PhD and David Foster, MD, MPH

University of Tennessee Health Science Center

Presented By: Candace Brown

**Objectives:** Although women with provoked vestibulodynia (PVD) appear to have increased tender point tenderness and pelvic floor pain, the relationship between these variables is not known. The objectives were to 1) correlate ratings of pain intensity during the tender point tenderness (TPT) examination to ratings of pain intensity with the vaginal algometer and 2) correlate TPT pain ratings and algometer pain ratings in subjects with fibromyalgia (FMS) and those without FMS.

**Methods:** Fifty subjects at least 18 years of age with clinically confirmed PVD were included. The TPT was used to diagnosis FMS by palpating 18 tender points. Vaginal pain sensitivity was measured using a prototype pressure algometer, where 0.1, 0.3, and 0.5 kg/cm<sup>2</sup> forces were applied digitally in random assignment to the iliococcygeus and, as a control, to the posterior vaginal wall. TPT pain intensity was captured on a numeric rating scale (NRS) 0 (no pain) to 10 (worse pain). A NRS (0–10) was used to measure algometer pain intensity at two sites and a pain thermometer (0–10) at one site. All scores were converted to a NRS for data analysis. A diagnosis of FMS was made if pain was present (NRS  $\geq$  2) in at least 11 of the 18 tender point sites. Pearson correlations were used to determine the relationship between TPT pain ratings and vaginal algometer pain ratings and between TPT pain ratings and algometer pain ratings in subjects with FMS and those without FMS. The significance level was at  $P < .05$  and the data were expressed as mean  $\pm$  standard deviation.

**Results:** The mean number of tender points with intensity of at least 2 was  $4.2 \pm 5.4$  (range 0–18). The mean  $\pm$  SD algometer pain intensity following 0.1, 0.3, and 0.5 kg/cm<sup>2</sup> force on the iliococcygeus was  $2.5 \pm 2.6$ ,  $4.0 \pm 3.0$ , and  $5.3 \pm 2.9$  and that on the posterior vaginal wall was  $2.2 \pm 2.4$ ,  $3.8 \pm 2.9$ , and  $5.1 \pm 2.9$ . Significant correlations were found between NRS pain ratings on the TPT exam and algometer testing in the right iliococcygeus ( $r = 0.50$ ,  $p = .0002$ ), left iliococcygeus ( $r = 0.35$ ,  $p = .0133$ ) and the posterior vaginal wall ( $r = 0.46$ ,  $p = .0008$ ). The correlations between TPT pain ratings and algometer pain ratings were higher among subjects with FMS than without FMS in the right iliococcygeus ( $r = 0.50$  vs.  $r = 0.18$ ), left iliococcygeus ( $r = 0.48$  vs.  $r = -0.05$ ) and posterior vagina ( $r = 0.36$  vs.  $r = 0.15$ ) but none of the correlations were significant.

**Conclusion:** Preliminary data show that women who experience more severe pain with tender point palpation also experience more pain in the iliococcygeus and vaginal wall, and this association is greater in women with FMS than in those without FMS. Further research using a more precise definition of FMS and a uniform algometer pain intensity rating is recommended to confirm this relationship. These findings suggest that women with PVD coexisting with FMS have greater risk of superimposed lower genital pain and may be candidates for adjunctive pelvic floor physical therapy.

**Keywords:** Vestibulodynia, fibromyalgia, pain intensity ratings

**Summary:** A correlation exists between tender point and vaginal algometer pain intensity ratings in women with PVD and this association is greater in women with FMS.

## Poster #11

**THE RELATIONSHIP OF VULVAR PAIN TO HIP DISORDERS: LONG-TERM FOLLOW UP AFTER HIP ARTHROSCOPY**

Deborah Coady, MD, FACOG<sup>3</sup>, Stacey Futterman, PT, MPT, WCS, BCB-PMD<sup>1</sup>, Dena Harris, MD, FACOG<sup>3</sup> and Struan Coleman, MD, PhD<sup>2</sup>

<sup>1</sup>5 Point Physical Therapy PLLC, New York, New York; <sup>2</sup>Hospital for Special Surgery, New York, New York; <sup>3</sup>New York University Langone Medical Center

Presented By: Deborah Coady

**Objectives:** To investigate the hypotheses that some chronic vulvar pain is related to Femoro-Acetabular Impingement and Labrum Tears, and that treatment with focused hip and pelvic floor physical therapy and, if needed, arthroscopic repair will improve vulvar pain. An additional goal was to clarify which patients would more likely benefit from hip arthroscopy.

**Methods:** During a 26-month period in a private gynecology practice focusing on vulvar pain, patients diagnosed with chronic vulvar pain who were found to have concomitant hip disorders were referred for hip and pelvic floor physical therapy, and if unsuccessful, hip arthroscopy. At a postoperative interval of 36 to 58 months, a follow-up analysis of the benefit of arthroscopy on vulvar pain was performed by chart review. Surgical benefit was determined by assessing whether patients continued to undergo evaluation and treatment for vulvar pain. Differences between groups with and without benefit were analyzed with respect to demographics, clinical characteristics, numerical pain scores and a patient satisfaction questionnaire.

**Results:** 75 patients with chronic vulvar pain were diagnosed with concomitant hip disorders by screening clinical evaluation. Three patients found to have hip osteoarthritis were removed from analysis. 26 patients aged 23 to 74 years did not obtain acceptable relief of hip symptoms with conservative therapy, and underwent arthroscopy for labrum tears and femoro-acetabular impingement, with 96% of them improving their hip pain. At 36 to 58 months after hip surgery, 6 patients (mean age 25 years) had also maintained postoperative improvement in chronic vulvar pain. All 6 were in a subgroup of 7 patients under 30 years old, and all had suffered with pain for 4 or less years (mean 2.8). Twenty patients, with a mean age of 42 and a mean duration of pain of 6.5 years, did not experience long-term vulvar and pelvic pain benefit from hip arthroscopy.

**Conclusion:** Most vulvar pain patients experience satisfactory improvement in hip symptoms with conservative treatment. Of those who undergo arthroscopy, patients under 30 years old are more likely to obtain relief of chronic vulvar pain, compared to older patients. Younger patients with a shorter duration of pain are more appropriate candidates for arthroscopic repair with the goal of benefiting coexisting hip and vulvar pain disorders.

**Keywords:** Chronic vulvar pain, vulvodynia, labrum tears, femoro-acetabular impingement, pelvic floor physical therapy

**Summary:** Most patients experienced benefit to hip pain with conservative treatment. Of those who underwent hip arthroscopy, women under 30 years old were more likely to obtain long-term relief of concomitant vulvar pain.

**Poster #12****PSYCHOSOMATIC ASPECTS OF CHRONIC PELVIC PAIN SYNDROME, PSYCHOMETRIC RESULTS FROM AN INTERDISCIPLINARY OUTPATIENT CLINIC**Christian Bruenahl, MD<sup>2</sup>, Björn Riegel, PhD<sup>1</sup> and Bernd Löwe, MD<sup>1</sup><sup>1</sup>Department of Psychosomatic Medicine and Psychotherapy University Medical Centre Hamburg-Eppendorf, Hamburg, Germany; <sup>2</sup>University Medical Centre Hamburg-Eppendorf

Presented By: Christian Bruenahl

**Objectives:** Chronic pelvic pain syndrome (CPPS) is considered a multi-causal syndrome. Complex interactions of psychological factors with somatic dysfunctions are crucial to the development and maintenance of CPPS. In our study, the psychological and physical symptoms involved in CPPS were investigated.

**Methods:** CPPS outpatients were recruited from an interdisciplinary chronic pelvic pain clinic. Symptoms of depression were measured by the Patient Health Questionnaire (PHQ-9), anxious symptomatology by the Generalized Anxiety Disorder Scale (GAD-7), the severity of somatic symptoms by the PHQ-15 and quality of life by the short form of the Health Survey (SF-12). In addition, a structured interview (SKID-I) was used to assess comorbid psychological disorders and socio-economic data were obtained.

**Results:** In total, 90 participants were included in the study. We found a mean disease duration of 6.8 years combined with a high-average pain intensity and high-economic costs. All CPPS patients had significantly poorer outcomes in comparison to the test-specific, population-based samples (all  $p < .001$ ). The SKID-I interviews revealed a high rate of comorbid psychological disorders in CPPS patients.

**Conclusion:** Our data show that psychopathology, in addition to the accompanying somatic symptoms, play a significant role in CPPS.

**Keywords:** Interdisciplinary health team, outpatient clinic, depression, anxiety, quality of life

**Summary:** Due to the complex interactions of psychological factors with somatic dysfunctions evidence-based, interdisciplinary diagnostic and treatment methods are urgently needed.

**Poster #13****ASSESSING PSYCHOSOCIAL ASPECTS ASSOCIATED WITH CHRONIC PELVIC PAIN SYNDROME (CPPS) IN MEN – A SYSTEMATIC REVIEW**Björn Riegel, PhD<sup>1</sup>, Christian Bruenahl, MD<sup>2</sup> and Bernd Löwe, MD<sup>1</sup><sup>1</sup>Department of Psychosomatic Medicine and Psychotherapy University Medical Centre Hamburg-Eppendorf, Hamburg, Germany; <sup>2</sup>University Medical Centre Hamburg-Eppendorf

Presented By: Christian Bruenahl

**Objectives:** Chronic pelvic pain syndrome (CPPS) is a chronic pain disease with high prevalence rates and is associated with substantial health care costs. An interdisciplinary classification system is commonly used (UPOINT) which includes psychosocial factors. Nevertheless, psychosocial influences on CPPS only recently became a research focus. Therefore, we aimed to synthesize the existing data and to identify further research topics. Then, based on our results, diagnosis and treatment can be improved.

**Methods:** In a systematic review conducted according to the PRISMA reporting guidelines, we searched the different databases (MEDLINE, EMBASE, PsychINFO) using the broad search terms “chronic pelvic pain syndrome AND men.” Two raters independently screened the literature and assessed the risk of bias.

**Results:** We included 71 original research articles which considered psychosocial variables. We found studies investigating different psychosocial factors (pain catastrophizing, stress, personality factors, social aspects), comorbid psychiatric disorders (depression, anxiety, somatization disorder, substance abuse) and Quality of Life (QoL) – the most frequently researched factor in CPPS. In addition, there is a high risk of bias in most studies.

**Conclusion:** There is evidence to suggest that psychological factors are important in understanding CPPS. However, research concentrated on a few aspects while the others were not covered adequately. We found evidence of a higher number of psychosocial factors and psychiatric comorbidities than is currently included in the UPOINT system.

**Keywords:** Chronic prostatitis with chronic pelvic pain syndrome, mental disorder, psychosocial aspects, quality of life, review

**Summary:** More high-quality research is needed to understand the interplay of psychosocial factors in CPPS. Furthermore, these factors should be incorporated into treatment approaches.

## Poster #14

**PERSONALITY AND ITS ASSOCIATION WITH SYMPTOM SEVERITY IN CPPS PATIENTS**

Björn Riegel, PhD, Bernd Löwe, Prof, MD and Christian Bruenahl, MD

University Medical Centre Hamburg-Eppendorf

Presented By: Björn Riegel

**Objectives:** Chronic pelvic pain syndrome (CPPS) is typically considered a multi-causal syndrome. CPPS patients are often classified according to their predominant symptoms using the UPOINT categorization system, which includes different aspects of the etiology and maintenance of CPPS. One domain captures psychosocial aspects but is limited to psychiatric symptoms (e.g. depression), dysfunctional cognitive style (pain catastrophizing cognitions) and social support. In addition, there is data to suggest that personality factors and aspects of psychological functioning from a psychodynamic point of view are involved in CPPS etiology and maintenance. Because these variables are not mentioned in the current guidelines, our study aims to examine their effect on symptom severity.

**Methods:** CPPS outpatients, both men and women, were recruited from an interdisciplinary chronic pelvic pain outpatient clinic. Symptom severity was measured by the Chronic Prostatitis Symptom Index (NIH-CPSI) and pain intensity was quantified with the McGill Pain Questionnaire (MPQ-SF). In order to assess personality factors and psychic functioning, three well validated German questionnaires were employed: (1) The Operationalised Psychodynamic Diagnosis Structure Questionnaire (OPD-SQ) which describes several dimensions of intrapsychic functioning (e.g. self-regulation), (2) The Personality Style and Disorder Inventory (PSSI) which measures personality traits and pathologies (e.g. ambition vs. narcissism) and (3) The Giessen Test II (GT-II) was used to assess self-image. Data were obtained before patients entered the outpatient clinic.

**Results:** In total, 90 participants were included (54% women; pain duration: 6.5 years). Several subscales and dimensions of the three personality measures were associated with pain intensity as measured by the MPQ-SF. In contrast, the same associations were not found with the NIH-CPSI.

**Conclusion:** As would be expected from the current literature, there was an association between symptom severity and personality variables. Our data differentiates this view: While symptoms of CPPS were not strongly linked to personality traits, the perception of pain appears to be worse in CPPS patients with more weakness in their psychic structure and personality. We conclude that psychological treatment of CPPS should include the strengthening of different aspects of the psychic structure, e.g. self-regulation.

**Keywords:** Chronic pelvic pain syndrome, psychic structure, psychic comorbidity

**Summary:** The evaluation of 90 male and female CPPS patients recruited in our outpatient clinic revealed an association between personality factors and pain intensity but not symptom severity.

## Poster #15

**PELVIC PAIN OF PUDENDAL NERVE ORIGIN: SURGICAL OUTCOMES & LEARNING CURVE LESSONS**A. Lee Dellon, MD, PhD<sup>1</sup>, Deborah Coady, MD<sup>2</sup> and Dena Harris, MD<sup>2</sup><sup>1</sup>Johns Hopkins University; <sup>2</sup>New York University Langone School of Medicine

Presented By: A. Lee Dellon

**Objectives:** Given the generally unsatisfactory results from the traditional Robert or “French” “posterior,” transgluteal, approach to surgical treatment of “pudendal neuralgia,” the purpose of this study was to apply peripheral nerve concepts of neuroma versus compression, and a new, “anterior” surgical approach to the treatment of pudendal nerve symptoms refractory to medical management and pelvic floor therapy.

**Methods:** A prospective cohort of 55 consecutive patients, 30 female and 25 male, refractory to medical and physical therapy management of their pelvic pain, were accrued over three years. Patient diagnosis was dichotomized into pudendal neuroma (treated by resection) or compression (treated by neurolysis). Diagnosis was sub-stratified according to which pudendal nerve branches were involved: rectal, perineal or dorsal. Physical findings plus the presence or absence of rectal symptoms determined whether the surgical approach was posterior (transgluteal) or anterior (along the inferior pubic ramus). This creates four categories for analysis; anterior approach for neuroma, anterior approach for compression, posterior approach for neuroma and posterior approach for compression. (Note: This latter approach is the usual diagnosis and usual approach worldwide). Outcomes were evaluated using multiple validated instruments as well as patient self-reporting of excellent, good, poor or failure.

**Results:** At a mean of 14.3 months (range 12 to 24 months), outcome analysis demonstrated patient self-reported outcomes correlated significantly with the validated instruments:  $p < 0.5$  for the Female Sexual Function Index,  $p < .02$  for the Vulvar Questionnaire, and  $p < .001$  for the numerical analog score. While there was no difference in success between male and female patients, or between those with a diagnosis of neuroma versus compression, or those with an anterior versus a posterior surgical approach, there was a statistically significant difference between those patients operated on in the first year, and between those in the second year of the study,  $p < .0001$ , with further significant improvement of  $p < .04$  between those operated on between the second and third year of the study. These results are best understood as a learning curve. The outcomes in the patients accrued during the first year of the study design were not better than those historically reported, with just 12% excellent and 18% good, and 45% failures. With experience identifying confounding variables mitigating against success, such as undertreated anxiety/depression, and with improving surgical technique, the success in patients from the second year was 70% excellent and 4% good and just 20% failures. The success rate in the third year of the study improved to 86% excellent and 14% good, with 0% failures. Urinary symptoms were predictive of success following resection of the perineal branch of the pudendal nerve,  $p < .02$ .

**Conclusion:** With appropriate diagnosis, including which pudendal nerve branch is involved with either compression or neuroma, a site-specific surgical approach can be devised to offer patients success significantly better than what has been reported historically, with excellent results being achieved in 70% to 100% of the most recent patient group across all categories of surgical intervention.

**Summary:** Hope for surgical relief from pudendal nerve problems lies in distinguishing neuroma from compression in the diagnosis, and then choosing a site-specific surgical approach related to which pudendal nerve branches are involved.

## Poster #16

**SURGICAL MANAGEMENT OF ENDOMETRIOSIS: REOPERATION RATES USING MULTIMODAL AND MULTIDISCIPLINARY MANAGEMENT TECHNIQUES AN INTERIM ANALYSIS.**

Janette Davison, MD and Kenneth Levey, MD, MPH

Weill Cornell Medical College

Presented By: Janette Davison

**Objectives:** To determine the reoperation and recurrence rates after excisional surgery for endometriosis by a single practitioner in a tertiary referral center with a multidisciplinary and multimodal approach to chronic pelvic pain.

**Methods:** All patients who underwent laparoscopic radical resection of endometriosis from January 1, 2007 to December 31, 2013 were identified. Endometriosis was completely excised with laparoscopy or robotic-assisted laparoscopy. Lumbar sympathectomy and appendectomy were also performed in patients who had those structures present. Only patients with histologically confirmed endometriosis on pathology from the index surgery by this provider were included. Postoperative care was then individualized with a thorough approach that addressed comorbid conditions accordingly. Such comorbidities included pelvic floor muscle spasm, interstitial cystitis, musculoskeletal, rheumatologic, gastrointestinal or neurologic disorders, leiomyomata, adenomyosis, vulvar pathology, and psychological disorders. Main outcome measures were obtained with retrospective chart review and included quarterly rates of reoperation and recurrence used as indicators of efficacy of surgery and measured by life table analysis. Prospective questionnaires will also be used to acquire additional follow-up from patients.

**Results:** Preliminary analysis of 100 patients reveals the cumulative rate of reoperation was 6.9% at 2.5 years and 22.7% at 4.5 years and the cumulative recurrence rate with biopsy-proven endometriosis was zero at 2.5 years and 16.9% at 4.5 years. 92% of patients had a comorbid condition in addition to endometriosis. Final analysis will include approximately 150 patients and extended follow-up duration obtained via prospective survey.

**Conclusion:** This risk of reoperation for chronic pelvic pain following complete laparoscopic excision of endometriosis is low for patients managed in a multidisciplinary pelvic pain center. The majority of patients with chronic pelvic pain and endometriosis have additional related comorbidities. This preliminary data suggests that a thorough approach that addresses these additional processes that contribute to chronic pelvic pain may be a key factor in maintaining such reoperation rates lower than previously reported for patients with endometriosis.

**Keywords:** Endometriosis, reoperation, recurrence, chronic pelvic pain

**Summary:** The long-term outcome for chronic pelvic pain patients undergoing laparoscopic endometriosis excision, as measured by reoperation and recurrence rates, is improved with a multidisciplinary approach to chronic pelvic pain.



## Poster #17

**VULVAR PAIN TERMINOLOGY: IMPLICATIONS FOR DIAGNOSIS & TREATMENT**

A. LEE DELLON, MD, PHD<sup>1</sup> and Deborah Coady, MD, FACOG<sup>2</sup> (Presented By: Deborah Coady)

<sup>1</sup>Johns Hopkins University Medical Center, Baltimore, Maryland; <sup>2</sup>New York University Langone Medical Center

**Objectives:** The International Society for the Study of Vulvovaginal Disease (ISSVD) met in 1976 and agreed to call idiopathic vulvar pain “burning vulva syndrome.” In 1983, Friedrich, who defined the symptoms and physical findings for a painful vestibule, coined the term “vestibular adenitis” and then in 1987 changed this to “vulvar vestibulitis.” At the 2003 ISSVD Biennial World Congress held in Brazil, terminology for chronic vulvar pain was updated and divided into two categories, the first to include vulvar pain related to known etiologies, and the second for vulvar pain in which the vulva had a normal appearance and the etiology was not “specifically clinically identifiable.” The latter was termed “vulvodynia.” The purpose of this presentation is to apply new anatomic and pathophysiologic knowledge to redefine the categories of vulvar pain, and advance the understanding of pudendal and other pelvic nerve disorders, thus guiding diagnosis and treatment to improve the outcomes of surgical approaches to “pudendal neuralgia.”

**Methods:** The historical derivation of nomenclature for vulvar pain and pudendal nerve injury is reviewed in light of the newest basic science and anatomy studies. With regard to the pudendal nerve, terminology is updated to relate to currently accepted peripheral nerve definitions and classification.

**Results:** A classification of Chronic Vulvar Pain is formulated based upon recent advances in knowledge, in a format that can be presented to the ISSVD prior to their 2015 XXII World Congress, for consideration to update the 2003 ISSVD Terminology and Classification of Vulvar Pain.

**Conclusion:** This new proposed Terminology and Classification for Vulvar Pain will replace the term “Vulvodynia.” “Vestibulodynia” as a specific pathophysiologic entity denotes exactly where localized pain exists and remains in the proposed classification. It is suggested that “pudendal neuralgia” be eliminated as a diagnosis, and replaced by specific pudendal nerve or other pelvic nerve branch names, with neuroma or compression subcategories. The entire proposed terminology system will be presented on the poster at the IPPS annual meeting.

**Keywords:** Vulvar pain, vestibulodynia, pudendal neuroma, vulvodynia, pudendal neuralgia

**Summary:** We recommend that classifying chronic vulvar pain be based on etiology and on specific anatomical pelvic nerve pathology such as neuroma or compression. A new system of terminology is proposed, for comment by members of IPPS and ISSVD.

## Poster #18

**THE USE OF SITE-SPECIFIC TENDERNESS DURING TRANSVAGINAL ULTRASOUND FOR THE PRE-OPERATIVE MAPPING OF PERITONEAL ENDOMETRIOSIS.**

Shannon Reid<sup>2</sup>, Chuan Lu, BEng, MSc, PhD<sup>1</sup>, Ishwari Casikar, MBBS<sup>2</sup> and George Condous, MD, MBBS<sup>2</sup>

<sup>1</sup>Department of Computer Sciences, University of Wales, Aberystwyth, United Kingdom; <sup>2</sup>Gynaecology, Early Pregnancy and Advanced Endosurgery Unit, University of Sydney, Nepean Hospital, NSW, Australia

Presented By: Shannon Reid

**Objectives:** To determine whether the presence of site-specific tenderness during transvaginal sonography (TVS) corresponds with the location of peritoneal endometriosis at surgery.

**Methods:** Multi-center prospective observational study undertaken from January 2009 to February 2013. This study included women with symptoms of chronic pelvic pain +/- history of endometriosis, who were planned for laparoscopic endometriosis surgery. All women underwent TVS prior to laparoscopy, which included the assessment of site-specific tenderness. Site-specific tenderness was elicited by placing gentle pressure with the transvaginal probe against each of the six locations: anterior vaginal fornix, right adnexa, left adnexa, right uterosacral ligament (USL), left USL, and posterior vaginal fornix. Women were asked to rate their pain score from 0 (no pain) to 10 (worst pain) for each of the six locations. All women underwent laparoscopy +/- excision of endometriosis. Those women who had either an endometrioma and/or posterior compartment deep infiltrating endometriosis at laparoscopy were excluded from the analysis, i.e. only those women with peritoneal disease were included. The relationship between site-specific tenderness at TVS and location of peritoneal endometriosis at surgery was then analyzed.

**Results:** 189 consecutive women with TVS and laparoscopic outcomes were included in the final analysis. Mean age was 32.2 years and mean age for diagnosis of endometriosis was 26.2 years. 100 women were found to have isolated peritoneal endometriosis (no endometrioma or deep infiltrating endometriosis) and were therefore included in the final analysis. Peritoneal endometriosis was present in the following locations at surgery, in decreasing order of frequency: left USL (39%), right USL (33%), left pelvic sidewall (30%), right pelvic sidewall (23%), pouch of Douglas (POD) (22%), uterovesical pouch (14%) and posterior cervix (4%). The only positive association between site-specific tenderness at TVS and peritoneal endometriosis location at surgery was for site-specific tenderness at the posterior vaginal fornix and the presence of peritoneal endometriosis in the POD (p=0.0486).

**Conclusion:** The use of site-specific tenderness during TVS appears to be useful in the mapping of peritoneal endometriosis involving the POD.

## Poster #19

**5 ALPHA-REDUCTASE ENZYME DEFICIENCY: A NEW PATHOPHYSIOLOGY OF FEMALE SEXUAL PAIN DISORDER DUE TO HORMONALLY MEDIATED PROVOKED VESTIBULODYNIA**

Irwin Goldstein, MD

Alvarado Hospital

Presented By: Irwin Goldstein

**Objectives:** Women with hormonally mediated provoked vestibulodynia typically have: i) diffuse pain/erythema and tenderness throughout their entire vestibule on Q-tip testing, ii) persistent sexual pain symptoms as well as symptoms of decreased libido, arousal, orgasm and fatigue in the presence of low calculated free testosterone, low total testosterone and elevated sex hormone binding globulin and iii) symptoms that begin while taking hormonal contraceptives or other medications that adversely affect calculated free testosterone, such as those for endometriosis, breast cancer, acne, infertility or undergoing breastfeeding or oophorectomy. Treatment of such individual has typically involved local vestibular testosterone/local vestibular estradiol with systemic testosterone. The use of testosterone for the treatment of hormonally mediated provoked vestibulodynia pre-supposes that the cytoplasmic enzyme 5 alpha reductase is functioning and converts free testosterone to the more active androgen dihydrotestosterone (DHT). We have noted a sub-group of women diagnosed with hormonally mediated provoked vestibulodynia who failed to have their symptoms ameliorated, with persistent bothersome sexual pain, and had no adverse events related to the increased testosterone, such as acne, facial hair or scalp hair loss. Dihydrotestosterone values were measured before and after testosterone treatment.

**Methods:** An IRB approved retrospective chart review was performed in 18 women examined between 2007–2014 presenting with persistent sexual pain symptoms despite being treated with local vestibular testosterone/estradiol and systemic testosterone. Data collected included DHT, testosterone, sex hormone binding globulin and calculated free testosterone values. Duration of use and duration of persistent side effects were recorded.

**Results:** The mean age was 34 +/- 8 years. The mean pre-treated testosterone values were 18 +/- 6 ng/dl (range 6 – 82 ng/dl), mean free testosterone values 0.2 +/- 0.1 ng/dl (ideal value 0.8 ng/dl) and mean DHT values <5 ng/dl (range 4 – 22 ng/dl). After initial treatments with local vestibular testosterone/estradiol and systemic testosterone, sexual pain persisted with mean treated testosterone values increased to 78 +/- 17 ng/dl and mean free testosterone values 0.9 +/- 0.2 ng/dl but mean DHT values remained low at 8 +/- 4 ng/dl.

**Conclusion:** A small subset of our female patients has been identified with persistent sexual pain while on testosterone treatment, with normal or elevated total and free testosterone values but low dihydrotestosterone values. The mechanistic hypotheses include persistent endocrine and epigenetic gene expression alterations of the 5AR enzyme. Symptoms in these patients have improved by increasing the serum DHT levels to the upper tertile of the normal range using low dose topical DHT (Andractim). More research is needed in this field; however, it is obvious that testosterone treatment is more complicated than just measuring total testosterone values.

## Poster #20

**ASSOCIATIONS BETWEEN LOWER URINARY TRACT SYMPTOMS, CHRONIC PAIN AND HISTORY OF BULLYING AND ABUSE**

Michael Ehler, MD<sup>1</sup>, Marlene Seltzer, MD<sup>2</sup>, Emily Dove-Medows, CNM, MSN<sup>3</sup>, Donna Carrico, NP, MS<sup>1</sup>, Jamie Bartley, DO<sup>2</sup>, Larry Sirls, MD<sup>2</sup>, Jason Gilleran, MD<sup>2</sup> and Kenneth Peters, MD<sup>2</sup>

<sup>1</sup>Beaumont Hospital; <sup>2</sup>Beaumont Hospital, Oakland University, William Beaumont School of Medicine; <sup>3</sup>Beaumont Hospital, Women's Urology Center

Presented By: Emily Dove-Medows

**Objectives:** To evaluate the prevalence of bullying and abuse in a women's urology clinic and whether bullying and abuse are associated with urologic, pelvic floor symptoms and pain.

**Methods:** A retrospective review of women presenting to a women's urology center. Women completed questionnaires on bullying, abuse history, the Pelvic Floor Dysfunction Inventory (PFDI-20), Overactive Bladder Questionnaire (OAB-q), and visual analog scale (VAS 0-10) for pain. Subjects were grouped by ICD-9 primary diagnosis codes into urologic, gynecologic and pain groups for analysis. Chi squared and t-tests were performed between groups. Logistic regression was used to explore abuse/bullying history with outcomes.

**Results:** 199 records reviewed showed 105/172 (61%) answering bullying questions were exposed to bullying, 58/172 (33%) were victims. 48/198 (24%) answering abuse questions were abused. Exposure to bullying did not increase overall or pelvic pain scores (VAS >3) or PFDI-20 scores. Victimization by bullying was predictive of having overall pain ( $p=0.036$ ), but did not predict pelvic pain ( $p=0.076$ ), higher PFDI-20 summary score, most sub-scores, OAB-q severity or QOL score. Abused women had higher PFDI Summary Score ( $p=0.013$ ) and most sub-scores, more pelvic pain >3 on VAS (62% vs. 30%;  $p<0.001$ ), but not OAB-q severity or QOL scores. An abuse history was predictive of overall pain ( $p<0.001$ ), pelvic pain ( $p=0.001$ ) and a higher PFDI-20 summary score ( $p=0.012$ ).

**Conclusion:** 60% of women in a female urology clinic reported bullying exposure and 1/4 an abuse history. Bullying predicted greater overall pain scores. Abuse predicted increased pelvic pain, overall pain, urologic and pelvic floor symptoms.

**Keywords:** Bullying, abuse, urology, pelvic pain, female urogenital diseases

**Summary:** Exposure to both bullying and abuse has implications for a female urology clinic population.

## Poster #21

**VOIDING COMPLAINTS IN PATIENTS PRESENTING WITH PELVIC PAIN**

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Presented By: Emily Dove-Medows

**Objectives:** Women with pelvic pain are heterogeneous and presenting symptoms may not reflect primary organ pathology. The objectives of this study were to determine associations among clinic-demographic variables, and voiding symptoms in women with high pain scores vs. low pain scores who present to a multidisciplinary women's urology clinic.

**Methods:** A retrospective chart review of consecutive women presenting from July 2012 to April 2013. Data collected include demographics, symptom surveys, past medical history, physical exam findings and final diagnosis codes (ICD-9). Women with higher pelvic pain scores, defined a priori as self-reported severity of  $\geq 3/10$  in any domain (overall, bladder, vulvar, pelvic), were compared to those with lower pain scores,  $< 3/10$ . Voiding symptoms were quantified with Overactive Bladder Questionnaire Short Form (OABq-SF) and Pelvic Floor Distress Inventory (PFDI 20) scores and sub-scores.

**Results:** 199 women were identified. Of 190 of women with valid pain scores, 103 (52%) had high pain scores. This group was younger (45 yrs. vs. 54 yrs.,  $p < 0.001$ ), more likely to abstain from alcohol (55% vs. 37%,  $p = 0.013$ ), have irritable bowel syndrome (33% vs. 19%,  $p = 0.026$ ) and have more pelvic (1.66 vs. 1.01,  $p = 0.029$ ) and urologic (0.49 vs. 0.15,  $p = 0.017$ ) surgeries, including surgical menopause (60% vs. 30%,  $p = 0.004$ ). The high pain score group reported less stress incontinence (36% vs. 51%,  $p = 0.04$ ), but more sensation of incomplete bladder emptying (50% vs. 23%,  $p < 0.001$ ). The groups did not differ in the incidence of urinary frequency, urgency with leakage or OABq symptom severity score. The high pain score group had a higher Pelvic Organ Prolapse Distress Index (POPDI 6) (39.7 vs. 25.3,  $p > 0.001$ ), PFDI 20 summary score (99.7 vs. 68.2,  $p < 0.001$ ), a lower (worse) transformed Health Related Quality of Life score (61.9 vs. 72.3,  $p = 0.013$ ), and were more likely to have a history of anxiety (51% vs. 32%,  $p = 0.009$ ) and depression (43% vs. 22%,  $p = 0.003$ ). They were also least likely to be given a urologic diagnosis (23%) versus a gynecologic or pelvic pain diagnosis (31% and 46%,  $p < 0.001$ ).

**Conclusion:** Women presenting with higher pelvic pain scores are significantly younger, have had more urologic and gynecologic procedures, have more pelvic organ distress and worse quality of life than women with lower pelvic pain scores. They report less irritative voiding symptoms and are less likely to be assigned a urologic diagnosis.

**Keywords:** Voiding, pelvic pain

**Summary:** Women with pelvic pain have similar voiding complaints but worse quality of life.

## Poster #22

**PUDENDAL NEURALGIA FOLLOWING VAGINAL SURGERY – CASE REPORT**

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Presented By: AL Herrera-Betancourt

**Objectives:** To report a clinical case of postsurgical pudendal neuralgia in a woman presenting at the Unidad de Laparoscopia Ginecológica Avanzada y Dolor Pélvico (ALGIA) / Clínica Comfamiliar Risaralda (Colombia)

**Methods:** Case report

**Results:** A 53-year-old woman was evaluated in the Unidad de Laparoscopia Ginecológica Avanzada y Dolor Pélvico (ALGIA) / Clínica Comfamiliar Risaralda because of burning and aching pain in the left side of her vulva and her left gluteal fold after a vaginal surgery. A vaginal surgery (hysterectomy plus anterior and posterior repairs) was performed three months before because of pelvic prolapse without incontinence or pain. Mesh was not used. The pathology showed no malignancy. One week after vaginal surgery, she noted new onset of burning and aching pain in the left side of her vulva and her left gluteal fold. Past medical history included mild asthma (without medication); G3P3A0C3V3; menopause at 48 years old; and hysterocele and cystocele grade II (POP-Q II) without incontinence. She had no known allergies. On physical examination, the patient appeared healthy, and the vital signs were normal. The skin of the pelvis and perineum area was normal. Pinprick sensory examination revealed hyperalgesia in all branches of the left pudendal nerve compared to the thigh. The three branches on the right side were normal. The internal pelvic exam showed a normal vaginal vault with no evidence of inflammation or granulation tissue. The rest of the physical exam was normal. Pudendal neuropathy was confirmed by pain relief after the first transgluteal block of the left pudendal nerve. The technique was to place the patient prone on a fluoroscopy table. The left side elevated on a bolster to 30 degrees. The ischia spine was identified using fluoroscopy and the skin was marked over that landmark. The gluteal area was prepared in the usual antiseptic fashion. A skin wheal was raised overlying the marked site, injecting lidocaine 1% with #25 needle. Then a block needle (#20 spinal needle) was advanced through the skin wheal and directed it through the sacrotuberous ligament to the ischial spine. It was retracted and angled medially to the region of the pudendal nerve. Paresthesia occurred to confirm proximity to the nerve. The medication was injected in an anterior-posterior distribution. 40 mg triamcinolone acetone, 2000 units of heparin, 25 mg ketamine and 15 ml of 1% lidocaine. There were no complications. Patient was transferred to recovery area, two hours later the block was evaluated as high quality: 3 of 3 branches were blocked, showing anesthesia to pinprick. The patient was discharged later that day; and 25mg of amitriptyline was prescribed every night. Two additional pudendal blocks guided by fluoroscopy were performed at 6-week intervals. At present she is pain-free four months since the last block.

**Conclusion:** Pudendal neuralgia should be considered as a differential diagnosis in any patient who has had vaginal surgery and develops gluteal and perineal pain. The nerve may be injured by direct trauma (lateral retractors or entrapment of the nerve by ligature) or stretching (position in stirrups). The key point in the diagnosis of the pudendal neuralgia is use of pinprick sensory examination. A successful block confirms the diagnosis. Failure of long-term pain control after a series of successful blocks is the indication for surgical exploration/decompression. Until now, there are varieties of techniques in the literature in order to block the pudendal nerve (by fluoroscopy, by ultrasound, by tomography). The fluoroscopic approach is the most popular and easy to develop. The success rate is about 70% and the other 30% will need decompression surgery of the pudendal nerve.

**Keywords:** Pudendal neuralgia, pudendal nerve block, fluoroscopy, chronic pelvic pain



## Poster #23

**ENDOMETRIAL GENE EXPRESSION AND RELATION TO ENDOMETRIOSIS-ASSOCIATED PELVIC PAIN**

Sarah Conduit-Hulbert, MD<sup>3</sup>, Frank Tu, MD, MPH<sup>1</sup>, Serdar Bulun, MD, PhD<sup>2</sup>, Yuichi Furukawa, PhD<sup>2</sup> and Kevin Hellman, PhD<sup>1</sup>

<sup>1</sup>Northshore University Health System/University of Chicago; <sup>2</sup>Northwestern University; <sup>3</sup>University of Chicago/Northshore University Health System

Presented By: Sarah Conduit-Hulbert

**Objectives:** To investigate gene expression of key regulators of estrogen production and expression (aromatase, StAR, SF-1, and ER- $\beta$ ) within endometrial tissue and determine whether abnormal uterine tissue expression is associated with pelvic pain symptoms and the histological diagnosis of endometriosis.

**Methods:** We recruited women identified through chart review from May 2010 to March 2013 with pelvic pain and endometriosis, pelvic pain without endometriosis, or pain-free controls. Eligibility was confirmed and patients underwent a battery of validated pain assessments. Patients underwent endometrial biopsy to assess gene expression via RT-PCR. Relative gene expression, in the form of delta-delta CT values, was compared across the groups to determine their variation among the groups and in relation to pain scores. Data was analyzed using Fisher's exact test for categorical data, ANOVA and K-Wallis for group comparisons, and Spearman's for correlation analysis.

**Results:** Twenty-four samples were available for analysis. Twelve patients were included in the pain and endometriosis group, 6 patients in the pain without endometriosis, and 6 patients in the no pelvic pain or without endometriosis group. Our analysis showed significantly increased relative expression of ER- $\beta$  in the endometrium of patients with pain and endometriosis compared with patients with pain without endometriosis (median relative expression 1.03 vs 0.35,  $p < 0.01$ ). A similar pattern was seen with aromatase, but it was not statistically significant (median 0.67 vs 0.23,  $p = 0.19$ ). ER- $\beta$  was not correlated with pain scores; however, it was correlated with aromatase expression ( $r = 0.40$ ,  $p = 0.05$ ). StAR was correlated with Interstitial Cystitis Symptom and Problem Indices ( $r = 0.56$ ,  $p < 0.01$  and  $r = 0.39$ ,  $p = 0.06$ , respectively) and the McGill Pain Inventory ( $r = 0.46$ ,  $p < 0.05$ ). StAR was inversely correlated with aromatase ( $r = 0.67$ ,  $p < 0.001$ ).

**Conclusion:** ER- $\beta$  gene expression is increased in endometrial tissue of patients with endometriosis when compared to patients without endometriosis. The increased expression of ER- $\beta$  in the endometriosis cohort but not in the pain cohort could help explain the hormonally dependent nature of endometriosis-related pain. Our findings that StAR was correlated with IC Symptom and Problem Indices and the McGill Pain Inventory regardless of endometriosis status highlights the relation between the estrogen synthesis pathway and pain symptoms. The inverse correlation of StAR and aromatase is unexpected and warrants closer study. ER- $\beta$  and StAR may be important targets for pelvic pain but larger longitudinal studies are warranted to further characterize their role.

**Keywords:** Pelvic pain, endometriosis, gene expression, ER- $\beta$ , aromatase

**Summary:** Twenty-four endometrial samples were analyzed for gene expression. ER- $\beta$  was found to be elevated in patients with endometriosis and pelvic pain and StAR was correlated with pain scores.

## Poster #24

**VENOUS ANGIOPLASTY AND STENTING IMPROVE PELVIC CONGESTION SYNDROME CAUSED BY VENOUS OUTFLOW OBSTRUCTION**Stephen Daugherty, MD<sup>2</sup> and David Gillespie, MD<sup>1</sup><sup>1</sup>Southcoast Physicians Group, Dartmouth, MA; <sup>2</sup>VeinCare Centers of Tennessee

Presented By: Stephen Daugherty

**Objectives:** Pelvic congestion syndrome is widely thought to be due to pelvic vein reflux. This report of a retrospective review of treatment of non-thrombotic common iliac vein or inferior vena cava obstruction with relief of symptoms demonstrates an often overlooked pathology. Stent placement is evaluated as an effective treatment for pelvic congestion syndrome due to venous obstruction even in the presence of left ovarian vein reflux.

**Methods:** Records from two institutions were reviewed for patients with non-thrombotic venous outflow obstruction and symptoms of pelvic congestion severely affecting quality of life. From January 2008 through May 2013, 19 patients were treated with stents for severe venous outflow obstruction. Although 7 patients also were found to have ovarian vein reflux, only one of these was treated with left ovarian vein coil occlusion.

**Results:** While 10 of the 19 patients presented with a chief complaint of lower extremity pain, edema or varicose veins, all patients described their pelvic symptoms as their dominant complaint. Imaging suggested moderate to severe compression of the left common iliac vein in 18 and a high-grade stenosis of the suprarenal inferior vena cava in one patient. Venography showed outflow obstruction with pelvic collaterals and intravascular ultrasound confirmed focal severe stenosis of the involved vein. Follow-up of 1–59 months (median 11 months) revealed complete resolution of pelvic pain in 15 of 19 patients and of dyspareunia/post-coital pain in 14 of 17 sexually active patients. Of the 15 patients who experienced lower extremity pain or edema prior to treatment, 13 experienced complete resolution after treatment. Imaging follow-up showed 16 of the stents to be widely patent with 3 minor asymptomatic stenoses.

**Conclusion:** Non-thrombotic obstruction of the left common iliac vein or IVC is an under-appreciated cause of pelvic congestion syndrome. Venous angioplasty/stenting provide excellent mid-term results for such patients with resolution of chronic pelvic pain and dyspareunia. Venous obstruction should be considered and carefully evaluated in patients presenting with pelvic congestion, and treatment of obstruction alone may solve the patient's symptoms.

**Keywords:** Pelvic congestion syndrome, iliac vein obstruction, venous stenting

**Summary:** Non-thrombotic iliac vein or inferior vena cava obstruction may cause pelvic venous congestion syndrome, and percutaneous stenting produces excellent mid-term results.





## Poster #25

**LUMBAR STENOSIS RESULTING IN PUDENDAL NERVE DYSFUNCTION: A CASE STUDY**

Lisa Johnson, DPT  
Southampton Hospital  
Presented By: Lisa Johnson

**Background:** Pudendal nerve entrapment (PNE) can cause dysfunction of the pelvic floor muscles, urinary and anal sphincters, bladder, vagina and rectum. Made up primarily of the nerve roots of S2–4, with common sites of pelvic entrapment, treatment typically focuses on alleviating inflammation and mobilizing the nerve along its tortuous path. While lumbar pathology is known to be an underlying causative factor in pelvic pain conditions, differential diagnosis is typically limited to lumbar herniated nucleus pulposus (HNP) with distinct radiculopathy, gross neural involvement in cauda equina syndromes, and PNE at sites beyond its exit from the sacral canal. This case illustrates pelvic pain patients that may be overlooked, whose S2–4 nerve fibers are compressed in the spinal canal below the level of the T12, before they form a distinct nerve trunk and exit the sacral canal.

**Case Description:** The patient was a 54-year-old woman with chronic complaints of severe pain at the lower abdomen extending to the anterior aspect of the right hip and vagina. She reported strong urinary urgency with bladder pressure, which was alleviated with urination and similar bladder urgency with defecation. She also complained of dyspareunia, urinary hesitancy, urethral pain with urination, difficulty clearing urine, mild stress incontinence, and difficulty tolerating prolonged standing and sitting on hard surfaces. She correlated the onset of her symptoms five months prior, with a urinary tract infection, which took six weeks to resolve. The patient was diagnosed with interstitial cystitis and began treatment with Elmiron. She noticed partial relief of symptoms and exacerbations correlated with food sensitivity. One month later, she noted severe vaginal pain triggered by stair-climbing and bending, which became unremitting.

**Interventions:** The patient underwent several bladder instillations with lidocaine DMSO by her urologist, with no benefit. She attempted acupuncture and Chinese herbal medicine, which were unsuccessful. Physical therapy (PT) treatment consisting of manual therapy techniques and electro-modalities to the pelvic floor, lumbosacral region and right hip along with hip/trunk flexion avoidance during ADL's, provided partial relief of symptoms. After 6 PT visits, the patient was referred back to urology requesting further diagnostic testing of the lumbar spine, right hip and pelvis to differentially diagnose between a hip labral tear, lumbar pathology and PNE. Right hip MRI revealed a labral tear. The patient underwent two cortisone injections to the hip with temporary relief of symptoms, which resumed following prolonged sitting. The patient was then referred to neurology, where a MRI of the pelvis was performed with negative results. PT sessions continued periodically until her symptoms were tolerable with ADL's. After one year with mild to moderate symptoms, the patient flared again following prolonged sitting with travel. Multiple medications failed to abate her symptoms, and she was forced to take disability leave from her job due to the severity of her pain. She sought consultation with her gynecologist, who referred her to a spinal orthopedist for diagnostic testing. The orthopedist refused to refer her for a lumbar MRI stating no correlation with her symptoms. Her primary care physician agreed to send her for the MRI, which revealed L4–5 HNP with ligamentous hypertrophy creating mild to moderate central canal stenosis. The patient received an epidural injection of cortisone at the L4–5 level, which completely resolved her symptoms. She has been symptom-free for two years.

**Conclusion:** This case highlights the importance of thorough lumbar spine assessment as an underlying pathology, with the ability to sensitize the pudendal nerve in the presence of mild to moderate lumbar spine stenosis.

**Keywords:** Pudendal nerve, lumbar stenosis, pelvic pain, interstitial cystitis

## Poster #26

**COMPARISON OF OUTCOME MEASURES IN A MULTIDIMENSIONAL MODEL OF CHRONIC PELVIC PAIN.**

Bradford Fenton, MD, PhD, Krystal Tossone, MA, MPH<sup>1</sup>, Scott Grey, PhD<sup>1</sup>, Michele McCarrol, PhD<sup>2</sup> and Vivian VonGruenigan, MD<sup>2</sup>

<sup>1</sup>Kent State University; <sup>2</sup>Summa Health System

Presented By: Bradford Fenton

**Background:** Multiple measures of treatment outcomes exist in chronic pelvic pain (CPP), without a clearly superior approach. Staging CPP based on a multidimensional scale has the potential to simplify the comparison of complex patients. The objective of this study was to evaluate four possible outcome measures and compare them to pain stage while controlling for other covariates.

**Methods:** A total of 343 patients provided evaluable outcome (change after treatment) data for Global Physical Health (GP), Global Mental Health (GM), Visual Analog Pain Scale (VAS), and Pain Interference (PI) using the patient reported outcome measures information system (PROMIS). Insurance status, education, race, smoking status, and time to follow up after treatment were controlled for using a Multivariate Analysis of Covariance (MANCOVA) against pain stage (low, medium, high) based on PROMIS latent class analysis. Principle Component Analysis (PCA) was used to compare outcome measures.

**Results:** The PCA showed that all four outcomes loaded on the same factor. The variance explained by the four outcomes were about equal except for VAS, with .68 being explained by the GP measure, .43 explained by the GM measure, .07 explained by the VAS measure and .66 explained by the PI measure. The MANCOVA results indicate that pain class is an overall significant ( $P < .0001$ ) contributor to the relationship between treatment and outcome measure change.

**Conclusion:** Outcomes in chronic pelvic pain treatment are most explained with the PROMIS Global Physical domain and least with the VAS. While pain class was an overall significant covariate, its effects on the relationship between treatment and outcome varied depending on type of outcome measured and treatment type. For the global physical outcome, nearly all of the differences between class and treatment were significantly correlated, and changes in outcome were mostly positive depending on pain class.

## Poster #27

**SENSORY MAPPING OF PELVIC DERMATOMES IN WOMEN WITH ONE OR MORE CHRONIC PELVIC PAIN DISORDERS.**

Noel McCabe, PhD<sup>1</sup>, Aisha Taylor, MD<sup>3</sup>, Gisela Chelimsky, MD<sup>2</sup>, Sangeeta Mahajan, MD<sup>3</sup>, Adonis Hijaz, MD<sup>3</sup>, Jeffrey Janata, PhD<sup>1</sup> and Thomas Chelimsky, MD<sup>2</sup>

<sup>1</sup>Case Western Reserve University; <sup>2</sup>Medical College of Wisconsin; <sup>3</sup>University Hospitals Case Medical Center

Presented By: Thomas Chelimsky

**Objective:** Women with chronic pelvic pain (CPP) may experience central sensitization resulting in secondary hyperalgesia. The convergence in the dorsal horn of nerves innervating abdominal and pelvic visceral and somatic tissues may lead to hypersensitivity of somatic tissues as the spine is sensitized to additional stimuli. A thorough sensory mapping of pelvic dermatomes in women with CPP would provide additional insight.

**Methods:** Women (18–80 yrs) with CPP (n=86) were grouped as having interstitial cystitis/bladder pain syndrome (IC/BPS, n=34), myofascial pelvic pain syndrome (MPP, n=12), or both (IC/BPS+MPP, n=40) and compared to healthy controls (n=36). Women underwent internal pelvic examination including bilateral (L+R) palpation (small C fiber) of pelvic floor muscles and an external examination including bilateral stimulation of large A-beta (vibration) and small A-delta (sharp pain) fibers of pelvic dermatomes T12, L1, L2, S1–5. Sharpness and pain intensity of sharpness were scored by subjects on a numeric rating scale (NRS) of 0 “not sharp or no pain” to 10 “very sharp or worst pain imaginable.” Vibratory sensation disappearance threshold was determined by Rydel–Seiffer quantitative tuning fork and scored using a NRS from 0 to 4 with 0 representing “no impairment” and 4 representing “severe impairment.”

**Results:** Pain in the levator ani (bilateral), obturator internus (bilateral), and perineal body for all CPP groups was significantly higher (all comparisons,  $p < 0.01$ ) than in healthy women. The sensation of sharp was not different between all groups. All CPP subjects exhibited vibration hypoesthesia, at least unilaterally, in all pelvic dermatomes except L1. Women with one or more CPP conditions reported elevated bilateral NRS sharp pain intensity ( $p < 0.01$ ) in most pelvic dermatomes. Comparisons between CPP groups indicate that pain in dermatomes L2L ( $p = 0.02$ ), S2R ( $p = 0.04$ ), S3L ( $p = 0.05$ ), S5L ( $p = 0.007$ ) and S5R ( $p = 0.02$ ) were higher in women with IC/BPS+MPP compare to IC/BPS alone. Asymmetric pain (L>R) was reported in all subjects with IC/BPS in pelvic dermatomes S4 and S5 (IC/BPS,  $p = 0.01$  and  $p = 0.003$  respectively; IC/BPS+MPP,  $p = 0.03$  and  $p = 0.002$  respectively).

**Conclusion:** This study provides a thorough sensory mapping of the pelvic dermatomes in women with IC/BPS and/or MPP. Women with these CPP conditions experience hypersensitivity to sharp pain of the pelvic dermatomes that may be the result of central sensitization and convergence of noxious stimuli at the spinal dorsal horn. The reduction in non-noxious sensation suggests simultaneous loss of function in normal sensory pathways, which may occur at the dorsal horn, or at higher processing centers in the brainstem or cortex.

**Keywords:** chronic pelvic pain, sensory mapping, pelvic dermatomes

**Summary:** Chronic pelvic pain may lead to secondary hyperalgesia in response to noxious stimuli, potentially due to central sensitization. Sensory mapping in women with CPP may enhance treatment decisions.

## Poster #28

**VOIDING DYSFUNCTION PHENOTYPING OF WOMEN WITH CHRONIC PELVIC PAIN SYNDROMES: PRELIMINARY RESULTS FROM THE ICEPAC TRIAL**

Elias Veizi, MD<sup>2</sup>, Adonis Hijaz, MD<sup>4</sup>, Noel McCabe, PhD<sup>1</sup>, Firouz Daneshgari, MD<sup>4</sup>, Jeffrey Janata, PhD<sup>1</sup> and Thomas Chelimsky, MD<sup>3</sup>

<sup>1</sup>Case Western Reserve University; <sup>2</sup>Louis Stokes Veterans Affairs Medical Center; <sup>3</sup>Medical College of Wisconsin; <sup>4</sup>University Hospitals Case Medical Center

Presented By: Thomas Chelimsky

**Objective:** Interstitial cystitis/Bladder pain syndrome (IC/BPS) and myofascial pelvic pain (MPP) are two of the most common forms of chronic pelvic pain (CPP). Cross organ sensitization in pelvis complicates the clinical diagnosis and treatment of IC/BPS as part of general CPP. ICEPAC trial aims to study the autonomic nervous dysfunction in patients with interstitial cystitis and myofascial pain and aims to assess the signature phenotypes of pain and voiding dynamic changes.

**Methods:** ICEPAC supported by NIH-NIDDK was designed by an interdisciplinary team. Enrollment will include 76 women with IC/BPS, 76 women with myofascial pelvic pain disorder (MPP), and 38 healthy age-matched women. Besides a detailed screening visit with comprehensive assessment of dysautonomias, pain intensity and disability scores, voiding dysfunction phenotype is assessed by Uroflow and a voiding diary. VAS scores, frequency, voiding volumes, flow parameters and timed flow assessment data are collected and analyzed.

**Results:** This preliminary analysis includes the first 60 patients [29 healthy control (con) subjects; 23 IC/BPS patient and 8 chronic MPP]. Subjects enrolled in the study are age matched [con 40±15, IC 39.6±15, MPP 40.5±14 yo]. BMI in MPP patients is significantly higher than Hcon and IC/BPS subjects [42±5 vs 26±9 in con and 27±8 in IC]. Voiding volumes were lower in the IC/BPS group vs Hcon and MPP whether frequency was higher in the IC/BPS group with similar fluid intake. The peak flow [Qmax] was significantly lower in the IC/BPS cluster 16±2 ml/sec vs. 28±11 con, 23±4 MPP; while the average flow rate was lower in both IC/BPS and MPP vs. con. Similarly duration of flow was higher in IC and MPP vs. con.

**Conclusion:** This preliminary quantitative evaluation of voiding diary and uroflow metrics reveals distinct voiding phenotypes in IC and MPP. The decrease in Qmax in IC cluster in comparison to con and MPP could be an indication of the internal sphincter autonomic dysfunction while the prolonged voiding duration and avg flow in MPP patients could indicate external sphincter hypertonicity [incomplete relaxation]. Further details on voiding dysfunction could lead toward a better understanding of the pathogenesis in IC vs other pelvic floor dysfunction syndromes.

**Keywords:** Chronic pelvic pain, bladder dysfunction

**Summary:** Women with CPP, particularly those with IC/BPS, display multiple bladder dysfunctions. Voiding volumes, peak flow and average flow rate were lower and frequency was higher in women with IC/BPS.

## Poster #29

**FEMALE CHRONIC PELVIC PAIN: WHY IS IT SO DIFFICULT TO TREAT?**

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Presented By: Jeffrey Janata

**Objective:** Treatments for women with chronic pelvic pain (CPP) are limited in their efficacy. The frequent co-morbidity of Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS) and Myofascial Pelvic Pain (MPP) may be under-appreciated. We aimed for a thorough phenotyping that would allow for more targeted treatment and understanding of each disorder.

**Methods:** In this IRB approved study, with consent obtained from every subject, women with CPP underwent a thorough screening and were grouped accordingly [IC/BPS alone, n=24; MPP alone, n=11; IC/BPS with co-morbid MPP (IC+MPP, n=35); and healthy controls (HC), n=35]. Self-reported bladder pain scores for two bladder states [empty (E), full (F)] were recorded on a numeric rating scale (NRS 0-10). Similarly, pain scores (NRS 0-10) associated with palpation of fibromyalgia (FM), abdominal, inner thigh, inguinal, and pelvic floor tenderpoints were recorded. Resting heart rate (HR), beat-to-beat HR recordings in the pre- and post-tilt supine position (10 min each) and during heads-up tilt (70°, 10 min blocks) were recorded to assess HR variability (HRV). Frequency domain parameters (low frequency (LF); 0.04-0.15 Hz and high frequency (HF); 0.15-0.4 Hz) were derived using the Autoregressive Spectrum.

**Results:** Women with IC/BPS+MPP had higher mean bladder pain [(F) 8.21(0.29; SE), (E) 4.55 (0.4)] than women with IC/BPS alone [(F) 6.87 (0.38), (E) 2.96 (0.50)] indicating that MPP has an effect on bladder pain in comorbid women regardless of bladder state. The comorbid condition also leads to higher myofascial pain (tenderpoints) in women compared to IC/BPS alone. Women with IC/BPS with or without MPP had elevated average resting HR (bpm) compared to HC [74.45 (2.53), 78.26 (2.53), and 67.10 (5.50), respectively]. When exposed to a physiologic stressor (tilt table test), HRV analysis illustrates 1) vagal tone is lower in IC/BPS women than in MPP and HC women in both supine and upright positions, and 2) HC have greater baroreflex sensitivity, as indexed by LF power, than IC/BPS patients supporting the hypothesis of an aberrant central autonomic response to stress in IC/BPS women not present in women with MPP alone.

**Conclusion:** Detailed phenotyping of subjects with CPP is critical to demonstrate markers of disease. Based on this phenotyping IC/BPS subjects have lower sympathetic and parasympathetic response with a predominantly sympathetic tone. MPP subjects have an autonomic profile very similar to healthy controls. On the other hand, MPP subjects have more generalized body pain. These findings suggest: 1) IC/BPS is a disorder of autonomic regulation with aberrant efferent response; 2) MPP is an afferent disorder with increased pain perception indicating that MPP has an effect on bladder pain in comorbid women regardless of bladder state.

**Keywords:** Chronic pelvic pain, tenderpoints, heart rate variability

**Summary:** Treating women with IC/BPS is complicated by the frequency of comorbidities. Detailed phenotyping could lead to individualized treatments and may be highly beneficial.

## Poster #30

**THE STRESS RESPONSE IN PELVIC PAIN: PSYCHOPHYSIOLOGIC MEASUREMENTS IN THE ICEPAC TRIAL (INTERSTITIAL CYSTITIS: ELUCIDATION OF PSYCHOPHYSIOLOGIC AND AUTONOMIC CHARACTERISTICS)**

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Presented By: Jeffrey Janata

**Objective:** Interstitial Cystitis/Bladder Pain Syndrome (IC/BPS) has been conceptualized as a disorder with aberrant behavioral, central autonomic and sensory responses to stressors, pain or threat. This preliminary study is designed to examine psychological and physiological aspects of this overactive threat response.

**Methods:** Women with IC/BPS, with myofascial pelvic pain (MPP) and with both types of pelvic pain (IC + MPP) and age-matched healthy controls between the ages of 18–80 were evaluated. Subjects completed measures of pain and function, along with a comprehensive battery of measures of stress and anxiety. In addition, a subgroup of subjects completed the Trier Social Stress Test (TSST), a standardized stress induction. Serum measures were drawn, including epinephrine, norepinephrine, dopamine, ACTH and cortisol, at baseline and immediately post-stress induction.

**Results:** Recruitment to date has totaled 106 subjects: 29 with IC/BPS, 13 with MPP, 38 with IC/BPS + MPP and 36 healthy controls. Compared to healthy controls, the pain groups demonstrate higher scores on measures of stress (Perceived Stress Scale) and anxiety (Spielberger State-Trait Anxiety Inventory) despite showing similar patterns of values on physiological indices (e.g. cortisol levels).

**Conclusion:** The results from psychological measures are consistent with the hypothesized aberrant response to stressors in the pain group which are not, however, manifest so clearly in physiologic indices. The results are discussed in the context of an examination of TSST responses in other anxiety disorders, as well as in the development of testable hypotheses to explain the psychologic and physiologic discrepancies.

**Keywords:** Chronic pelvic pain, bladder pain syndrome, stress, psychometrics, psychophysiology.

**Summary:** Psychological and physiological measures of stress and anxiety in subjects with CPP indicate higher levels of stress in psychological measures which are not clearly reflected in physiologic measures.

**Poster #31****MULTI-DISCIPLINARY CHRONIC PELVIC PAIN PROGRAM: PATIENT REPORTED CLINICAL OUTCOMES**

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Presented By: Lauren Westbay

**Objective:** To describe patient characteristics and patient reported clinical outcomes for women undergoing treatment in a comprehensive chronic pelvic pain (CPP) multi-disciplinary program.

**Methods:** A retrospective cohort study of CPP patients over a six-month period in a multi-disciplinary CPP program of a tertiary care center was conducted by analysis of the electronic medical record. The program comprised of a team of specialty care from physical medicine and rehabilitation, gynecology, urology, internal medicine, psychology, nursing and physical therapy is housed in a single combined clinic with coordinated visits and a team conference approach to management. Patient demographics, relevant diagnostic criteria, baseline evaluation and all follow-up visits of patient reported clinical outcomes were analyzed including the numerical rating scale (NRS) for pain (current and average), pain diagram, Pain Disability Index (PDI), Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder (GAD) Scale, and Patient Global Impression of Improvement (PGII) Scale.

**Results:** 116 patients presented for initial assessment with a mean age of 43.2 years (SD 14.4) and mean duration of symptoms of 6.2 years (SD 7.68). Pain location was mostly anterior (67.8%) with 42.2% reporting vaginal pain. Women were predominantly Caucasian (60.9%) and multiparous (64.5%) with commercial insurance (68.8%). On average they had 1.23 (SD 1.12) other pain comorbidities, 1.8 (SD 3.3) prior abdominal surgeries, and 23.3% were currently taking opioids. On their first visit, myofascial pelvic pain was the most common diagnosis (47%) followed by other musculoskeletal pain (17%) and interstitial cystitis (13%). Of those presenting for initial assessment, 30 (26%) followed up with an average time to follow up of 7 weeks (SD 5.5). At baseline, the clinical outcome measures were average NRS score 5.73 (SD 2.73), current NRS score 4.57 (SD 2.81), PDI mean total score 32.17 (SD 19.35) with PDI sexual subscale domain 7.19 (SD 3.08), PHQ9 score for depression 7.65 (SD 6.39), and mean GAD score 6.62 (6.26). However, for the 30 patients who followed up the baseline to follow up measures were as follows: average NRS 6.24 (SD 2.70) to 5.48 (SD 2.53), current NRS 4.93 (SD 2.89) to 4.48 (SD 2.81), PDI 39.10 (SD 20.18) to 29.37 (SD 17.0), PDI sexual 6.71 (SD 3.55) to 6.41 (SD 3.50), PHQ9 9.90 (SD 7.21) to 7.34 (SD 6.44), and GAD 7.86 (SD 6.40) to 6.39 (SD 5.74). They reported an average PGII score of 3.04 (SD 0.97) "a little better."

**Conclusion:** Women with CPP pose significant challenges to providers of every discipline. We describe a novel multi-disciplinary team approach to these complex patients who present after years of pain, multiple abdominal surgeries and multiple medications. Patients who followed up showed consistent but minimal improvement in the clinical domains of numeric pain rating, pain disability, depression and anxiety. Additionally, they report clinically significant improvement in their global impression of change. This small number of patients that followed up are likely not representative of our larger population as seen in the discrepancy of clinical outcome scores for the overall group and the returning patients at baseline and may represent the more complex patients. Although limited, this is one of the few analyses that track patient outcomes after multi-disciplinary intervention, and the improvement albeit small, points to the promising nature of this approach.

**Keywords:** Chronic, pelvic, pain, multi-disciplinary, outcomes

**Summary:** A multi-disciplinary approach to female CPP yields favorable short term trends in patient reported clinical outcomes in pain perception, mood and function despite the long duration and complex nature of presenting symptomatology.

## Poster #32

**MAPPING OUT AN INTERDISCIPLINARY FRAMEWORK FOR THE MANAGEMENT OF WOMEN WITH VAGINISMUS**

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Presented By: Claudia Brown

**Introduction & Objectives:** Vaginismus, recently classified as a genito-pelvic pain/penetration disorder, is characterised by persistent or recurrent difficulty in allowing vaginal penetration, in spite of an expressed desire to do so. The estimated prevalence of vaginismus is 0.5–1% in the general community, and 5–17% of referrals for female sexual dysfunction. Current recommendations for the management of vaginismus encourage the use of a multi-modal, multidisciplinary approach. The benefits of collaborative practice have been proven in the management of many health conditions, and the advantages of interdisciplinary management are believed to outweigh those of multidisciplinary management. Almost no literature is available on the collaborative approach to vaginismus nor on the operationalization of such an approach. The objective of this study was to establish preliminary international recommendations for best-practice interdisciplinary management of women with vaginismus.

**Materials & Methods:** A 2-fold methodological approach was used. First, an international multidisciplinary meeting of expert health professionals was held, to establish initial recommendations for the interdisciplinary management of women with vaginismus. Next, a two-round Delphi electronic survey of expert health professionals (who had not been involved in the expert meeting) was undertaken, to validate these recommendations and gather more information on the topic. Each participant had to be recognised by his peers as a knowledgeable source on the topic of vaginismus, and have at least one of the following: a) clinical experience in the treatment of at least 10 cases of vaginismus in the past 2 years; b) published professional papers on the topic area; c) initiated research on the topic area with publication expected in the near future. 15 experts participated in the group meeting, 18 in the Delphi survey.

**Results:** Qualitative and quantitative analysis led to a list of recommendations for best-practice interdisciplinary management of women with vaginismus, to include team make-up and coordination, goals of interdisciplinary collaboration and team functioning, elements in a comprehensive patient assessment, intervention availability, and patient involvement.

**Conclusion:** Because vaginismus involves significant physical and psychological components, it follows that the approach to management would require more than one discipline. Interdisciplinarity would optimize this approach. Education of the medical health professional on the psychological approach and of the mental health professional on the physical approach may facilitate more integrated management. Interdisciplinary intervention studies are needed to address the multi-faceted approach to vaginismus.

**Summary:** This research resulted in a list of nine recommendations for best-practise interdisciplinary management of vaginismus, and can be applied to the management of women with other sexual health conditions requiring the intervention of more than one discipline.

**Keywords:** Vaginismus, genito-pelvic pain-penetration disorder, sexual pain, physiotherapy, psychology



**Poster #33**

**OCCULT HERNIA DIAGNOSED BY SOFT TISSUE ULTRASOUND IN FEMALE PELVIC PAIN PATIENTS**

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Presented By: David Eisenstein

**Objective:** To document the prevalence of hernia as diagnosed by soft tissue ultrasound in a screened female pelvic pain population.

**Methods:** Retrospective Case Series. All charts of patients screened by soft tissue ultrasound for abdominal wall and inguinal hernias were reviewed.

**Results:** 103 patients over ten years were referred for ultrasound screening. There were 45 positive ultrasounds, 42 with specific defects identified and 3 designated equivocal, including: 13 direct inguinal; 4 indirect inguinal; 9 femoral; 8 combined inguinal and femoral; and 8 "other" including incisional and Spigelian hernias. 10 were bilateral, and 30 were repaired by the following techniques: 10 Bassini; 17 mesh-reinforced; 2 McVay; and 3 other types of repairs.

**Conclusion:** The data supports a significant prevalence of occult ultrasound-diagnosed hernia in women with chronic pelvic pain screened based on clinical criteria. Ongoing studies will document the etiologic link of occult hernia to pain and outcomes of intervention versus non-intervention.

**Keywords:** Hernia; Ultrasound; Chronic Pelvic Pain

**Summary:** Musculo-skeletal triggers are well recognized in the literature as sources of pelvic pain. Hernia as a component of pelvic pain in women is known but little studied. The occult presentation in female patients makes the diagnosis challenging, both in confirming the diagnosis and confirming an etiologic link to the pain. A retrospective study of 103 women screened for occult hernias by soft tissue ultrasound 45 had abnormalities, a 40% prevalence of a variety of hernias and soft tissue abnormalities. 30 patients, or 80%, received surgical correction. Follow up studies will document relevance of these findings to pain management.

**Poster #34****VULVAR VESTIBULECTOMY FOR PROVOKED VESTIBULODYNIA—A RETROSPECTIVE CASE–CONTROL STUDY**

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CVVD

Presented By: Andrew Goldstein

**Introduction:** Since it was first described by Woodruff in 1981, vulvar vestibulectomy for provoked vestibulodynia (PVD), previously known vulvar vestibulitis syndrome, has been the subject of 41 peer reviewed papers. The vast majority (37/41) of these studies have shown at least an 80% success rate. However, only two small studies have looked at the rate of improvement in PVD in women who elected to forgo surgery.

**Objective:** To determine if women who have undergone vulvar vestibulectomy for PVD have less dyspareunia, vulvar pain, and sexual dysfunction than women with PVD who chose not to have surgery.

**Study design:** A database review of a clinic that specializes in the treatment of vulvovaginal diseases identified 227 women diagnosed with PVD who had failed conservative treatment and who had been recommended to have vulvar vestibulectomy. Of the 227 women, 101 elected to have vestibulectomy and 126 decided to decline the vestibulectomy for additional conservative treatments or no additional treatments. Participants were emailed a link to an electronic survey where they were asked to answer questions pertaining to their decision to undergo or decline surgery, their current symptoms, and their current sexual satisfaction. Participants were also asked about the efficacy of treatments they have used since deciding to forgo surgery.

**Results:** 37 women who did not have a vulvar vestibulectomy and 51 who did have a vulvar vestibulectomy for PVD answered the online questionnaire. Women who did not have surgery were more likely to report persistent vulvar burning (86.2%), vulvar rawness (65.5%), and vulvar cutting (34.5%) as compared to women who underwent vestibulectomy (32.7%, 30.6%, and 10.2% respectively). Only 3.4% of women who did not have the vulvar vestibulectomy reported non-existent vulvar pain at least one year following their diagnosis, as compared to 28.6% of those women who did have the vestibulectomy. Women who did not have the vestibulectomy had more sexual dysfunction as measure by the FSFI (26.92) as compared to women who underwent vestibulectomy (19.67). Women who did not have the vestibulectomy reported fewer average episodes of intercourse each month (3.9) as compared to women who had the vestibulectomy (10.3).

**Conclusion:** Although there are limitations to retrospective case control studies, including selection bias and cognitive dissonance bias, this study provides empirical evidence that women who undergo the vulvar vestibulectomy after being diagnosed with primary neuroproliferative vestibulodynia report less vulvar pain and sexual dysfunction than women who did not have the vulvar vestibulectomy. This provides additional evidence that the vulvar vestibulectomy is an effective treatment for neuroproliferative vestibulodynia.

## Poster #35

**HOSPITAL-ASSOCIATED COSTS OF CHRONIC PELVIC PAIN IN CANADA**

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Presented By: Innie Chen

**Objective:** To determine the hospital-related costs associated with women requiring surgery or inpatient admission for chronic pelvic pain in Canada.

**Design:** In this population-based, cross-sectional study, women with hospitalization for chronic pelvic pain were captured using the Canadian Institutes for Health Information Discharge Abstract Database (CIHI-DAD). Clinical diagnoses and interventions and resource intensity weights (RIW) were extracted. Surgical interventions were categorized as hysterectomy, adnexal surgery, laparoscopy or other. Cost per weighted case methodology was used to determine costs.

**Setting:** Hospitals treating women with chronic pelvic pain in Canada.

**Patients:** Women ages 15-59 with a most responsible International Classification of Diseases diagnosis of pelvic and perineal pain, dysmenorrhea, or dyspareunia who had surgery or inpatient admission with a discharge date between April 1, 2008 and March 31, 2013 identified using the CIHI-DAD were included in this study.

**Measurements & Main Results:** Over five years, there were 42,273 cases of surgery or inpatient admission for chronic pelvic pain amounting to \$122,958,045. Cost for pelvic and perineal pain was \$66,546,465 (26,085 cases); cost for dysmenorrhea was \$50,568,978 (13,412 cases); and, cost dyspareunia was \$5,842,602 (2,776 cases). 38,595 (91.3%) cases were associated with surgical intervention, with the most common surgeries being hysterectomy (19,903 cases, 47.1%), laparoscopy (10,775 cases, 25.5%), adnexal surgery (2,979 cases, 7.0%), and other procedures (4,938 cases, 11.7%). The annual cost of chronic pelvic pain ranged from \$22,455,176 to 25,913,131 with the five year mean being \$24,591,609.

**Conclusion:** While these estimates do not take into account non-hospital related costs, such as outpatient treatment, loss of productivity, and impact on quality of life, this study on hospital-related costs demonstrates that chronic pelvic pain represents a considerable economic burden to Canadian society.