

# CONFERENCE PROGRAM



**June 27-29, 2019**  
**Burlington, VT, USA**

**#SAR2019CONF**

**[www.AcupunctureResearch.org](http://www.AcupunctureResearch.org)**

# SUPPORTING THE NEXT GENERATION OF INTEGRATIVE MEDICINE

As the oldest acupuncture program in the United States, the New England School of Acupuncture (NESA) has been synonymous with excellence in acupuncture education since 1974. And now, NESA is a part of Massachusetts College of Pharmacy and Health Sciences (MCPHS), making us the largest acupuncture school operating within a regionally accredited health sciences university.

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## **Welcome to the Society for Acupuncture Research 2019 Conference** *Acupuncture Research, Healthcare Policy & Community Health*

Welcome to Burlington!

The Society for Acupuncture Research was established in 1993 and this is our 19<sup>th</sup> conference. Whether this is your first SAR conference or your nineteenth, we are glad to have you with us! Our members include basic and translational scientists, clinical epidemiologists and trialists, and practicing acupuncturists who engage in research and education from 28 countries. Leaders from SAR have published manuscripts in leading general medical journals such as the New England Journal of Medicine, Lancet, JAMA, Annals of Internal Medicine, flagship journals for specific medical conditions such as Pain, Arthritis and Rheumatology, and Brain, as well as integrative journals such as JACM, ECAM, Acupuncture in Medicine, and Global Advances in Health and Medicine.

This year's conference is organized around the theme of moving toward a world where acupuncture research is organized, coherent and readily accessible to all relevant stakeholder groups in order to inform evidence-based decision-making. The goal is to support a reality where integration and cross-pollination can flourish - in both the intradisciplinary sense between various acupuncture stakeholders - and the interdisciplinary sense between acupuncture and other health care disciplines.

During these few short days together, we will explore:

- Knowledge and gaps in acupuncture research: What do we know and what do we need to know?
- Successes and shortcomings in the dissemination and implementation of acupuncture research: Are we "getting the word out" effectively?
- How can we work together to address these issues more effectively?

We thank the organizations who have supported this conference. In particular, we wish to acknowledge the Osher Center for Integrative Medicine (Harvard Medical School/Brigham and Women's Hospital), which is a formal co-sponsor for this event. You'll find the full list of sponsors acknowledged in the program. We also thank our speakers and presenters for their work and dedication. Without their contributions, this conference would not be possible.

We also acknowledge major grant support from the National Center for Complementary and Integrative Health within the National Institutes of Health, and the Eugene Washington PCORI Engagement Awards, an initiative of the Patient-Centered Outcomes Research Institute.

Enjoy the conference!



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**Society for Acupuncture Research**

130 Cloverhurst Court  
Winston Salem, NC 27103  
[www.acupunctureresearch.org](http://www.acupunctureresearch.org)  
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## GENERAL INFORMATION AND REMINDERS

### CEUs/PDA

All registrants who intend to receive CEUs/PDA points are reminded to be absolutely sure that you **complete** the following documents while onsite at the conference: 1. Attendance Record Form (this is a sheet located on a clipboard at the registration desk, and your current license number needs to be noted on that sheet); 2. Attendance Verification Form located in your attendee tote bag (you will need to initial the Attendance Verification Form beside each session that you attend), and 3. Lime Green Conference Evaluation Form, also located in your attendee tote bag. **You MUST complete these items and return** your completed **Attendance Verification Form (required for both CEUs and PDAs) AND your Conference Evaluation Form (required for CEUs)** to the conference registration desk before you leave the conference. CEUs/PDA points will not be awarded unless SAR receives completed forms **during the 2019 conference. CEUs/PDA points will not be awarded for any forms that we receive after the conference ends.** Please visit the conference registration desk for questions related to CEUs/PDA points for this conference.

### FRIDAY AND SATURDAY LUNCHES

For those attendees who registered for the full conference, for pre-conference workshops, or for Friday/Saturday daily rates, a boxed lunch is included in that fee. You must be wearing your name badge at the time lunch is picked up. Lunches for Thursday's pre-conference workshops will be delivered to the meeting rooms. Lunches for Friday and Saturday can be picked up near the ballroom/exhibit area on the fourth floor of the conference venue – in the Williams Family Room.

**If you indicated a special meal preference during your initial conference registration, please note the various boxed lunch options to be sure you take a lunch that meets those requirements. These will be indicated where lunches are located.** (For example, if you requested gluten free or vegetarian meals, those lunches will be marked specifically. Please only take a specially-marked lunch if you had indicated special preferences during your conference registration.)

### RECEPTION

For those attendees who registered for the full conference, a poster reception is included in the registration fee (Thursday's Poster Reception – located on the 2<sup>nd</sup> and 4<sup>th</sup> floors of the conference venue).

The SAR Conference Poster Reception will take place in the Mt Mansfield Room on the 2<sup>nd</sup> floor of the Davis Center and in the Livak Ballroom on the 4<sup>th</sup> floor of the Davis Center. A **BLUE DRINK TICKET** was included with your name badge, and paying by cash is an option for additional beverage purchases. Light hors d'oeuvres will also be available.

There will be posters, a beverage bar and food in BOTH reception locations. You may flow between spaces during the reception but please note that **alcoholic beverages may not leave either reception room.** Due to the Davis Center's liquor permit, all alcoholic beverages must be consumed in the room where they are ordered. Before leaving one of the reception spaces, please consume or discard of your alcoholic beverage. We are sorry for any inconvenience this may cause. Thank you for your understanding and being mindful of the Davis Center's alcohol policies - we greatly appreciate it.

## GENERAL INFORMATION AND REMINDERS (CONTINUED)

### FRIDAY EVENING'S GALA DINNER

If you pre-registered for Friday evening's gala dinner, you will have received a **RED DINNER TICKET** with your name badge. Please do not lose this! The dinner was an optional "add-on" to the main registration and was not included in the conference registration fee. At this point, the dinner is **SOLD OUT**.

### SAR AMBASSADOR'S PROGRAM

Acupuncture research is an International venture. In order to rapidly and effectively disseminate acupuncture research, the SAR Ambassador program identifies key leaders and scholars that share our organization's Mission and values, including supporting the next generation of academic clinicians, researchers and educators. SAR Ambassadors are members of SAR and represent their country or region and promote a bidirectional exchange of knowledge between SAR and respective acupuncture organizations in the Ambassador's country, as well as the broader community.

### Please welcome and thank our SAR Ambassadors –

**Australia:** Caroline Smith, PhD, MSc, BSc (Hons) (*unable to attend*)

**Brazil:** Ari More, MD, MSc

**Hong Kong:** Lixing Lao, PhD, LAc

**Italy:** Carlo Maria Giovanardi, MD

**Korea:** Younbyoung Chae, KMD, PhD

**Netherlands:** Johanna Biemans, MSc

**Norway:** Terje Alraek, PhD (*may not be able to attend*)

**Romania:** Stefan Costescu, MD

**Spain:** Dr. Beltran Carillo

### PHOTOGRAPHY/VIDEO

Please be advised that ALL main sessions in the Maple Ballroom during the conference may be audio recorded, and photos may be taken throughout the event. If you have any restrictions on SAR's use of your image, either photo or video, please let us know at the registration desk. Otherwise, without specific notification at the registration desk, by attending this event you agree to authorize SAR to use photos containing your image for any purpose designated by SAR board members and staff to promote SAR's mission and purpose.

## GENERAL INFORMATION AND REMINDERS (CONTINUED)

### POSTER PRESENTATIONS

All poster presenters: Poster board assignments are located on a bulletin board in the registration area (4<sup>th</sup> floor of the conference venue).

Please be sure that your poster is up on its assigned-number board as follows:

**Posters should be UP Thursday morning as soon as you arrive (or as early as possible thereafter).**

**Posters should be taken down Friday evening by 7pm.**

**NOTE: Posters that are not picked up by Friday evening at 7pm will be discarded.**

**GETTING AROUND:** Helpful addresses (networking dinner restaurants, taxis, etc.) are posted in the registration area.

**SOCIAL MEDIA:** Please use **#SAR2019CONF** when posting about SAR's 2019 conference via social media.

Please check the registration area for additional helpful information.

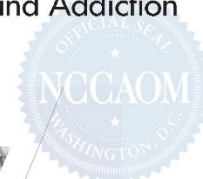


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- Opioid Crisis: Promoting Acupuncture for Pain and Addiction
- NCCAOM Certified Acupuncturists in the VA





**Please be sure to visit our sponsors' exhibit tables and thank their representatives (look for their "sponsor" ribbons).**

## Grant Support

National Center for Complementary and Integrative Health, NIH



\*\* Funding for this conference was made possible [in part] by 1 R13 AT09147-01 from the National Center for Complementary and Integrative Health (NCCIH). The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.

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PCORI workshops were funded through a Patient-Centered Outcomes Research Institute (PCORI) Eugene Washington PCORI Engagement Award (EAIN-00041)

**SAR Ambassador's Dinner Sponsor:**

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**Special Support Acknowledgements:**

Memorial Sloan Kettering Cancer Center – *In kind graphic support*  
Mary Ann Liebert, Inc. publishers – *Sponsorship of SAR Board dinner meeting and Abstract Awards*  
Osher Center for Integrative Medicine at Harvard Medical School and Brigham and Women's Hospital –  
*In kind pre-conference and onsite staff support*

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**THURSDAY, June 27, 2019**

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| <p>10:00am -<br/>12:00pm<br/><i>Silver Maple<br/>Ballroom 4<sup>th</sup> floor</i></p> | <p><b><u>Pre-Conference Special Interest Group 1 – Acupuncture Research Educators Roundtable:</u></b><br/>Join us as we explore how best to strengthen AOM Education. By fostering access to advanced evidence informed acupuncture practice, we will optimize outcomes, effectively collaborate in interdisciplinary teams, and ultimately improve patient care.</p> <p>What makes an excellent research curriculum? How can we integrate research evidence into teaching? How to engage students in active learning that enables them to participate as leaders of the profession? How to overcome the challenges to cultivating a culture of research in our colleges? How best to foster evidence informed practice, while incorporating the key tenants of the medicine? Based on successful models of research AOM education, we will work together to develop curriculum guidelines that help catapult acupuncture into the 21st century."</p> <p>Presented by AOM Educators:</p> <ul style="list-style-type: none"> <li>• <b>Heidi Most, DAC, LAc, Dipl Ac (NCCAOM), Professor, Maryland University of Integrative Health</b></li> <li>• <b>Carla Wilson, PhD, DAOM, LAc, Professor, California Institute of Integral Studies (CIIS)</b></li> <li>• <b>Anna K. Smith, DACM, MPH, LAc, Adjunct Faculty, Pacific College of Oriental Medicine</b></li> <li>• <b>Kenneth Glowacki, DACM, MEd, LAc, National University of Natural Medicine</b></li> </ul> <p>Facilitated by <b>Dr. Rosa N Schnyer, DAOM, IFMCP, LAc</b> and <b>Dr. Lee Hullender Rubin, DAOM, MS, LAc, FABORM</b></p> |
| <p>10:00am -<br/>12:00pm<br/><i>Chittenden<br/>Bank 4<sup>th</sup> floor</i></p>       | <p><b><u>Pre-Conference Special Interest Group 2 – Acupuncture in a Health Care System: Research Opportunities and Obstacles</u></b></p> <p>This workshop is for acupuncturists who work in a health system or hospital setting in order to provide a space for collaboration, networking and strategic initiative. Each two-hour segment consists of two sessions, as follows:</p> <p><b>Morning Sessions:</b><br/><b><u>The Risks and Rewards of Using the Electronic Health Record (EHR) for Research</u></b></p> <ul style="list-style-type: none"> <li>• <b>Jeff Dusek, PhD, Director of Research, Connor Integrative Health Network, University Hospitals, Cleveland, OH</b></li> </ul>  |

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|  | <p>One of the major transformations in healthcare has been the growth and reliance on the electronic health record (EHR) in healthcare. The EHR is truly ubiquitous in 21st century hospitals.</p> <p>Clinicians both applaud the interconnections allowed by use of the EHR and bemoan the extra clicks required to complete their daily charting.</p> <p>Researchers, on the other hand, are rarely involved in development of elements of the EHR and yet have a desire to unlock the riches held within its electronic tables and notes.</p> <p>It is the dependence on the clinical tool (the EHR) for research purposes that befuddles many researchers.</p> <p>The goal of this talk will be to provide some helpful hints and education to assist researchers who are considering requesting data from the EHR treasure trove. The talk will review both risks and rewards of using data from the EHR for research and provide some potential ways to be an active participant in the EHR build at their own institutions.</p> <p><b><u>Developing an EHR Template Across Systems for Clinical Care and Research</u></b></p> <ul style="list-style-type: none"> <li>• <b>Helen Ye, MS, LAc, <i>University of California, San Francisco</i></b></li> </ul> <p>As increasing numbers of acupuncturists work in institutional settings, electronic health records (EHR) are a fundamental aspect of documenting patient care; however multiple EHR systems are used across settings and institutions, and EHR training in acupuncture educational institutions is minimal.</p> <p>The result: poor consistency of documentation practices within institutions and extreme variances between them.</p> <p>Documentation practices need consistency for patient care purposes, research, and to accurately reflect the work, skills and training of acupuncture and Chinese medicine providers in Western medicine environments.</p> <p>In addition, the tremendous potential for “data mining” through EHR systems is severely constrained without common templates that allow for consistent data gathering of patient care.</p> <p>The University of California at San Francisco’s (UCSF) Osher Center’s Chinese medicine team has worked to develop consistent documentation practices with templates and shortcuts for frequently used content and tools within EPIC, one of the country’s largest and commonly used EHR systems in large institutions, to be published in the Journal of Alternative and Complementary Medicine.</p> <p>If researchers and practitioners are able to develop a consensus template(s) across institutions, data gathering for multiple research projects can be leveraged to a much</p> |
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|  | <p>larger degree; patient outcomes and best practices can be better monitored and identified, providing further support for the profession, as well as education and training programs and policy decisions.</p> <p>This session will allow the opportunity to explore these possibilities through the presentation of UCSF's work on their EHR, and a panel discussion to provide input on moving this fundamental shift in paradigm for all acupuncture practitioners and researchers in institutions across regions.</p> <p>Following this presentation by Helen Ye (35-40 minutes) will be a response panel including <b>Claudia Citkovitz, PhD, LAc</b> and other systems-based acupuncturists.</p>  |
| <p>12:00pm –<br/>3:00pm<br/><i>Jost Foundation<br/>Room 4<sup>th</sup> floor</i></p>   | <p><b><u>Patient Centered Outcomes Research Institute Workshop (PCORI) Invitation Only – Closed Session</u></b></p> <p>This PCORI workshop is funded through a Patient-Centered Outcomes Research Institute (PCORI) Eugene Washington PCORI Engagement Award (EAIN-00041)</p> <p>Organized by <b>Remy Coeytaux, MD, PhD</b>, Center for Integrative Medicine, Wake Forest School of Medicine</p>  |
| <p>1:00pm - 3:00pm<br/><i>Silver Maple<br/>Ballroom 4<sup>th</sup> floor</i></p> <p>1:00pm - 3:00pm<br/><i>Chittenden Bank<br/>Room 4<sup>th</sup> floor</i></p> | <p><b><u>Pre-Conference Special Interest Group 1 (continued) - Acupuncture Research Educators Roundtable</u></b> – see above for description.</p> <p><b><u>Pre-Conference Special Interest Group 2 (continued) - Acupuncture in a Health Care System: Research Opportunities and Obstacles</u></b><br/>- see above for description</p> <p><b><u>Integration of Acupuncture into Health Systems: Where are the tipping points?</u></b></p> <ul style="list-style-type: none"> <li>• <b>Arya Nielsen, PhD</b>, <i>Icahn School of Medicine at Mount Sinai, Department of Family Medicine &amp; Community Health</i></li> </ul> <p>Integration of acupuncture into health systems is not a uniform process. At each institution, choices are made as to which inpatient or outpatient units will offer the service, which patients are eligible, and who makes the decision to refer. These decisions are the inflection points determining how quickly integration proceeds, and several factors can tip them in one direction or another. The acupuncture evidence base is one key factor; others include perceived benefits of acupuncture (by patients or care providers), cost data, and the potential for acupuncture to help with specific challenges already identified — from the need to provide smoking cessation services to the current opioid epidemic, or the</p> |

paucity of treatment options for conditions such as pain, threatened miscarriage and irritable bowel syndrome.

This session, intended for acupuncturists working in health care systems as well as researchers, will explore these three factors in practical terms.

Following a 30-minute overview of clinical areas where acupuncture's evidence of benefit is strongest, **Drs. Arya Nielsen, Claudia Citkovitz** and the panel will discuss areas of systems-based practice where acupuncture's clinical impact appears to be strong despite lack of research to date, and areas where acupuncture may be useful in addressing patient care problems previously identified by the institution.

**Integration of Acupuncture at the Veteran's Administration**

- **Juli Olson, DC, LAc**, *Doctor of Chiropractic, Masters of Acupuncture and OM, Diplomate in Acupuncture (NCCAOM), Licensed Acupuncturist*
- **Justin Heesakker, DAOM, MS, LAc, Dipl OM**, *Field Implementation Team (FIT) Consultant, VHA Office of Patient Centered Care & Cultural Transformation (OPCC&CT)*

The purpose of this talk is to share what is happening in the Veteran's Administration, regarding the integration of acupuncture in the largest healthcare system in the United States.

We will talk about challenges and opportunities of rolling out acupuncture on such a large scale across a large area. This is a very exciting time where a large group of veterans now have access to acupuncture care that previously would have had to pay out of pocket, and new possibilities are opening for large-scale acupuncture research.

In 2017, a list of approved evidence-based Complementary Integrative Health (CIH) methods of care were added to the Veteran's Benefits Package. Included are acupuncture, biofeedback, clinical hypnosis, guided imagery, massage, meditation, tai chi/qi gong and yoga. In 2018, the Veteran's Administration created a Qualification Standard for Licensed Acupuncturists so they may be hired as full-time federal employees. Developing policies and offering best practices allows for greater acceptance of the profession and quick integration.

The growth of acupuncture is expected to continue at a quick pace. In order to meet the immediate demand for acupuncture services, the VA has widely trained non-acupuncture providers in Battlefield Acupuncture (BFA). Policies have been developed to improve access, including allowing multiple disciplines to train and provide BFA, eliminating written consent for auricular acupuncture and utilizing note templates in the EHR to collect research data specific to BFA.

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|   | <p>In preparation for the decision to add acupuncture to the Veteran’s Benefit Package, the VA underwent a systematic review of the literature culminating in the Acupuncture Evidence Maps published by the VA’s own Health Services Research and Development branch in 2014. In collaboration with the Department of Defense acupuncture has been included in several VA/DoD Clinical Practice Guidelines (CPG).</p> <p>As acupuncture becomes more widely available, the ability to measure both subjective and biometric outcomes, conducting clinical research on a large scale will be possible through the electronic health and designed notes. Additionally, capturing utilization &amp; cost data provides an opportunity to examine cost effectiveness for acupuncture, CIH and the Whole Health model. The Whole Health framework is a patient-centered care model that emphasizes a patient’s own goals for their health with resources and skill building to help them achieve those goals.</p> |
| <p>4:00pm – 4:15pm<br/>Grand Maple<br/>Ballroom 4<sup>th</sup> floor</p>  | <p><b><u>Welcome and Overview</u></b> – Rick Harris, PhD, SAR Co-President</p>  |
| <p>4:15pm - 5:45pm<br/>Grand Maple<br/>Ballroom 4<sup>th</sup> floor</p>  | <p><b><u>Symposia Panel 1: Patient Centered Acupuncture Research in the Real World</u></b></p> <p><b>Moderator: Peter Wayne, PhD, Osher Center for Integrative Medicine, Brigham and Women’s Hospital and Harvard Medical School</b></p> <ul style="list-style-type: none"> <li>• A Naturalistic Experiment Evaluating the Impact of Oregon’s Medicaid Treatment Reimbursement Changes on Provision of Pain-related Services and Patient Outcomes_ - <b>Lynn DeBar, PhD, MPH, Kaiser Permanente Washington Health Research Institute</b></li> <li>• Individual vs Group Acupuncture Therapy for Chronic Pain in an Underserved Population - <b>Arya Nielsen, PhD, Icahn School of Medicine at Mount Sinai, Department of Family Medicine &amp; Community Health</b></li> <li>• Patient Centered Research Outcomes: Integrative Group Visits_- <b>Paula Gardiner, MD, University of Massachusetts Medical School</b></li> </ul> <p><b>Response panel and audience discussion</b></p>                           |
| <p>5:45pm - 6:00pm<br/>Grand Maple<br/>Ballroom 4<sup>th</sup> floor</p>  | <p><b><u>Featured Posters: Oral Medley</u></b></p> <p><b>Moderator: Peter Wayne, PhD, Osher Center for Integrative Medicine, Brigham and Women’s Hospital and Harvard Medical School</b></p>  |
| <p>6:00pm - 7:30pm<br/>Livak Ballroom 4<sup>th</sup><br/>floor &amp; Mt.<br/>Mansfield 2<sup>nd</sup> floor</p> | <p><b><u>Poster Reception and Session</u></b></p> <p><i>Sponsored by Tibetree - Cheezheng Tibetan Medical Company, Ltd.</i></p>   |
|   | <p>Dinner on your own</p>   |



**FRIDAY June 28, 2019**

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| <p>7:30am - 8:30am</p> <p><i>Seating in the Grand Maple Ballroom 4<sup>th</sup> floor</i></p>   | <p><b>Breakfast: NETWORKING</b> (among attendees and with exhibitors)</p> <p><i>Sponsored by National Certification Commission for Acupuncture and Oriental Medicine</i></p> <p>Select tables in the ballroom will be designated with various topics for networking discussions. Other tables will be unassigned for non-structured networking.</p>  |
| <p><i>Grand Maple Ballroom 4<sup>th</sup> floor</i></p> <p>8:30am - 8:35am</p> <p>8:35am - 8:40am</p> <p>8:40am - 8:50am</p> <p>8:50am - 9:00am</p> | <p><b><u>Welcome &amp; Opening Remarks</u></b> - Robert Davis, MS, LAc, SAR Co-President</p> <p><b><u>Welcome by Dr. Stephen Leffler, Interim President, University of Vermont Medical Center</u></b></p> <p><b><u>Opening Remarks</u></b> - Helene Langevin, MD, Director, National Center for Complementary and Integrative Health at the National Institutes of Health</p> <p><b><u>Conference Theme and Introduction of Program</u></b> - Robert Davis, MS, LAc, SAR Co-President</p>  |
| <p>9:00am - 9:45am</p> <p><i>Grand Maple Ballroom 4<sup>th</sup> floor</i></p>  | <p><b><u>Session One - Opening Plenary: The Science of Acupuncture for Chronic Pain – The Abridged Summary</u></b></p> <p><b>Moderator: Jun Mao, MD, MSCE, Chief, Integrative Medicine Service, Memorial Sloan Kettering Cancer Center</b></p> <p>Subject matter experts will present an abridged overview of the scientific evidence re: acupuncture for pain.</p> <ul style="list-style-type: none"> <li>• <b><u>Basic Research: Mechanisms of Acupuncture (Animals)</u></b> - Rick Harris, PhD, University of Michigan</li> <li>• <b><u>Translational Research (humans)</u></b> - Vitaly Napadow, PhD, LAc, SAR Co-President, Massachusetts General Hospital, Martinos Center for Biomedical Imaging</li> <li>• <b><u>Safety, Efficacy and Comparative Effectiveness</u></b> - Hugh MacPherson, PhD, University of York</li> <li>• <b><u>Cost Effectiveness</u></b> – Claudia Witt, MD, MBA, Institute for Complementary and Integrative Medicine; University Hospital Zurich and University Zurich</li> <li>• <b><u>Evidence-informed Patient Care</u></b> - Jun Mao, MD, MSCE, Memorial Sloan Kettering Cancer Center</li> </ul> <p><b>Audience Questions</b></p> |
| <p>9:45am - 10:15am</p> <p><i>Livak Fireplace Lounge 4<sup>th</sup> floor</i></p>   | <p>Break / Networking with Exhibitors</p>  |

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| <p>10:15am -<br/>11:00am<br/><i>Grand Maple<br/>Ballroom 4<sup>th</sup> floor</i></p> | <p><b><u>Session Two – Delivering Care: Voices of Patients and Providers</u></b></p> <p><b>Moderator:</b> Rosa Schnyer, DAOM, LAc, <i>University of Texas</i></p> <p><b>Panelists:</b> Cara Sachs (patient), James Cornett (patient), Ben Kligler, MD, MPH; Tristin Adie, NP</p> <p>This panel will humanize the research by giving voice to patients and providers who will share their experiences illustrating the benefits and challenges of receiving, coordinating and getting access to acupuncture.</p> <p>Audience members will also be invited to share their voices.</p>   |
| <p>11:00am -<br/>12:00pm<br/><i>Grand Maple<br/>Ballroom 4<sup>th</sup> floor</i></p> | <p><b><u>Session Three – Plenary Presentation: Access to Acupuncture</u></b></p> <ul style="list-style-type: none"> <li>• <b>Patricia M Herman, ND, PhD, RAND Corporation</b></li> <li>• <b>Claudia Witt, MD, MBA, Institute for Complementary and Integrative Medicine; University Hospital Zurich and University Zurich</b></li> <li>• <b>Josh Plavin, MD MPH, Blue Cross Blue Shield of Vermont</b></li> </ul> <p><b>Audience discussion</b></p>   |
| <p>12:00pm - 1:00pm</p>   | <p>Lunch - Pick up boxed lunch in Williams Family Room beside the ballroom and exhibit area 4<sup>th</sup> floor</p>  |
| <p>1:00am - 1:45pm<br/><i>Grand Maple<br/>Ballroom 4<sup>th</sup> floor</i></p>       | <p><b><u>Session Four – “Studying Acupuncture Dissemination and Implementation”</u></b></p> <ul style="list-style-type: none"> <li>• <b>Dave Clark, Dr. PH, NCCIH Program Director</b></li> </ul> <p>This session will provide a brief introduction to core concepts of implementation science research and opportunities for acupuncture. NCCIH priorities for implementation science research will be discussed along with current funding pathways.</p>  |
| <p>1:45pm - 2:30pm<br/><i>Grand Maple<br/>Ballroom 4<sup>th</sup> floor</i></p>       | <p><b><u>Session Five – Using Research to Advocate for Evidence-Based Health Care Policy (A “top down” approach to dissemination)</u></b></p> <p><b>Moderator:</b> Ben Kligler, MD, MPH</p> <p>This panel will provide real world examples of dissemination of research findings via interaction with health care policy makers.</p> <ul style="list-style-type: none"> <li>• <b><u>Joint Commission</u> - Arya Nielsen, PhD, Icahn School of Medicine at Mount Sinai, Department of Family Medicine &amp; Community Health</b></li> <li>• <b><u>Vermont BCBS</u> - Robert Davis, MS, LAc, Acupuncture Vermont</b></li> <li>• <b><u>Oregon Medicaid</u> - Laura Ocker LAc, MACOM, Multnomah County Health Department</b></li> </ul> |

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|  | <b>Panel Discussion and Audience Questions</b>   |
| 2:30pm - 3:30pm<br><i>Grand Maple<br/>Ballroom 4<sup>th</sup> floor</i>  | <p><b><u>Session Six – Getting the Word Out: Improving the Dissemination of Acupuncture Research to Providers and Patients (panel discussion) (A “bottom up” approach to dissemination)</u></b></p> <p><b>Moderator/Presenter:</b> John Weeks</p> <p><b>Panelists:</b></p> <ul style="list-style-type: none"> <li>• <b><u>Evidence Based Acupuncture</u></b> - Mel Koppelman, MSc</li> <li>• <b><u>American Society of Acupuncture</u></b> - David Miller, MD LAc</li> <li>• <b><u>Acupuncture Now Foundation</u></b> - Matt Bauer, LAc</li> <li>• <b><u>American Academy of Medical Acupuncture</u></b> - Narda Robinson, DO, DVM, MS, FAAMA</li> </ul> <p>Overview: The evidence supporting acupuncture’s safety, effectiveness, and cost-effectiveness is just beginning to penetrate the American consciousness. Estimates are that it takes 17 years on average for research to change practice. Acupuncture’s foreign origins compound this problem. This panel includes representatives from a range of organizations who will explore this problem and discuss current actions and proposed plans to “get the word out.”</p> |
| 3:30pm - 4:00pm<br><i>Grand Maple<br/>Ballroom 4<sup>th</sup> floor</i>  | <b><u>Thoughts about Sessions One through Six: A Conversation with Helene Langevin, MD, Remy Coeytaux, MD, PhD, and Robert Davis, MS, LAc</u></b>  |
| 4:00pm - 4:30pm<br><i>Livak Fireplace<br/>Lounge 4<sup>th</sup> floor</i>  | Break / Networking with Exhibitors   |
| 4:30pm - 6:00pm<br><br><i>Silver Maple<br/>Ballroom 4<sup>th</sup> floor</i><br><br><br><br><br><br><br><br><br><br><i>Sugar Maple<br/>Ballroom 4<sup>th</sup> floor</i> | <p><b><u>Session Seven: 2 Concurrent Sessions</u></b></p> <p><b>Parallel Sessions</b></p> <ol style="list-style-type: none"> <li>1. <b>Neural Substrates of Acupuncture Actions: from Peripheral to Central Nervous System Mechanisms</b> <ul style="list-style-type: none"> <li>• <b><u>Electroacupuncture on Essential Hypertension: Over-excitation of Sympathetic Tone</u></b> - Stephanie Tjen-A-Looi, PhD, <i>Susan Samuelli Integrative Health Institute, University of California, Irvine</i></li> <li>• <b><u>Point-specific effects of electroacupuncture on the autonomic nervous system: New insight from an fMRI study of the human hypothalamus</u></b> - Florian Beissner, PhD, <i>Hannover Medical School</i></li> <li>• <b><u>The role of cognitive factors in acupuncture actions</u></b> - Younbyoung Chae, KMD, PhD, <i>Kyung Hee University</i></li> </ul> </li> <li>2. <b>Acupuncture won't help you get pregnant: responding to why the research is insufficient to support referral for acupuncture in assisted conception</b></li> </ol>  |

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|  | <ul style="list-style-type: none"> <li>• <b><u>Acupuncture won't help you get pregnant: an overview of the current evidence</u></b> - Lee Hullender Rubin, DAOM, MS, LAc, FABORM, <i>UCSF Osher Center for Integrative Medicine</i></li> <li>• <b><u>Why acupuncture therapy assists with behavior change-the case of assisted reproduction</u></b> - Lisa Conboy, MA, MS, ScD, <i>New England School of Acupuncture, MCPHS University</i></li> <li>• <b><u>New research approaches for assessing acupuncture therapy effectiveness in assisted reproduction</u></b> - Beau Anderson, PhD, LAc, <i>Monmouth University</i></li> </ul>  |
| 6:00pm - 7:00pm  | Break  |
| 7:00pm - 9:00pm<br><i>Brennan's Pub &amp; Bistro Room 1<sup>st</sup> Floor</i> | <p><b><u>SAR Dinner and Networking</u></b> (<i>By reservation ONLY for those who purchased tickets in advance</i>)</p> <p><b>MC:</b> Rick Harris, PhD, <i>SAR Co-President</i></p> <p><b>Dinner Speakers:</b></p> <ul style="list-style-type: none"> <li>• <b><u>Implementation Science of Acupuncture: Past and Future</u></b><br/>Richard Hammerschlag, PhD, <i>Dean Emeritus of Research, Oregon College of Oriental Medicine; Institute Scholar Emeritus, The Institute for Integrative Health; Adjunct Professor, Dept of Neurology, Oregon Health &amp; Science University</i></li> <li>• <b><u>Acupuncture Research: Where is the Field Going?</u></b><br/>Helene Langevin, MD, <i>Director, National Center for Complementary and Integrative Health at National Institutes of Health</i></li> </ul> |

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## SATURDAY June 29, 2019

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| 7:30am - 8:30am<br><i>Seating in the Grand Maple Ballroom 4<sup>th</sup> floor</i> | <p><b>Breakfast: NETWORKING</b> (among attendees and with exhibitors)</p> <p><i>Sponsored by Crane Herb</i></p> <p>Select tables in the ballroom will be designated with various topics for networking discussions. Other tables will be unassigned for non-structured networking.</p> |
| 8:30am - 9:00am<br><i>Grand Maple Ballroom 4<sup>th</sup> floor</i>                | <p><b><u>Session Eight - Featured Plenary Presentation: Clinical Trial of Acupuncture for Urinary Stress Incontinence</u></b></p> <p>Liu Baoyan, PhD, <i>Traditional Chinese Academy of Sciences (CACMS)</i></p>   |
| 9:00am - 10:00am   | <p><b><u>Session Nine - Symposia Panel: Embracing the Overlap Between Acupuncture and Neuromodulation: A Bird's Eye View from NIH and Industry</u></b></p>   |

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| <p>Grand Maple<br/>Ballroom 4<sup>th</sup> floor</p>                              | <p>Overview: There is growing interest by our healthcare system in non-pharmacological neuromodulation device-based therapies. In addition to growing interest from Industry, at the U.S. National Institutes of Health, the Common Fund's Stimulating Peripheral Activity to Relieve Conditions (SPARC) is focused on understanding nerve-organ interactions to ultimately advance the neuromodulation. In fact, many neuromodulatory therapies target peripheral nerves and receptors. In turn, electroacupuncture, which uses needles in conjunction with electrical stimulation, significantly overlaps with many new technologies falling under the neuromodulation umbrella, and the wealth of research already published covering both neuromodulation and electro-acupuncture therapy needs to be integrated to further our understanding of mechanisms supporting these therapies.</p> <p><b>Introduction: Vitaly Napadow, PhD, LAc, SAR Co-President, Massachusetts General Hospital, Martinos Center for Biomedical Imaging</b></p> <ul style="list-style-type: none"> <li>• <b>Wen Chen, PhD, National Center for Complementary and Integrative Health, National Institutes of Health</b></li> <li>• <b>Ben Pless, Partners HealthCare Innovation</b></li> </ul> |
| <p>10:00am -<br/>10:30am</p>  | <p>Break / Networking with Exhibitors</p>  |
| <p>10:30am -<br/>11:45am</p> <p>Sugar Maple<br/>Ballroom 4<sup>th</sup> floor</p> | <p><b><u>Oral Presentations 1: Basic Science</u></b></p> <p><b>Chairperson: Ari Moré, MD, MSc</b></p> <p><b>Acupuncture Promotes Sensorimotor Network Neuroplasticity in Fibromyalgia</b><br/><b><i>Ishtaq Mawla</i></b></p> <p><b>Acupuncture analgesia for low back pain is associated with greater pressure pain-evoked activation in dorsolateral prefrontal cortex and a reduction in hyperalgesia</b><br/><b><i>Kylie Isenburg</i></b></p> <p><b>The role of dopaminergic synapse signaling pathway in prefrontal cortex in the antidepressant effect of electroacupuncture in the chronic unpredictable mild stress rat model</b><br/><b><i>Jialing Zhang</i></b></p> <p><b>Evaluating the efficacy of acupuncture using a dental pain model in healthy subjects – a randomized controlled trial</b><br/><b><i>Daniel Pach, MD</i></b></p>  |
| <p>Silver Maple<br/>Ballroom 4<sup>th</sup> floor</p>                             | <p><b><u>Oral Presentations 2: Clinical Research</u></b></p> <p><b>Chairperson: Lee Hullender Rubin, DAOM LAc FABORM</b></p> <p><b>Acupuncture for Stable Angina Pectoris: A Systematic Review and Meta-analysis</b></p>   |

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|  | <p><b><i>Mingxiao Yang, PhD, LAc</i></b></p> <p><b>Intersections of Practice, Research, and Policy: Update on Washington State Labor &amp; Industries Coverage of Acupuncture for Injured Workers</b><br/><i>Lisa Taylor-Swanson, PhD</i></p> <p><b>Comparative Effectiveness Trial of Acupuncture Versus Cognitive Behavioral Therapy for Insomnia: Implications for Personalized Medicine</b><br/><i>Jun Mao, MD, MSCE</i></p> <p><b>Acupuncture for Persistent Chemotherapy-induced Peripheral Neuropathy Symptoms in Solid Tumor Survivors: A Pilot Study</b><br/><i>Ting Bao, MD, DABMA, MS</i></p> <p><b>Efficacy and Safety of Acupuncture Treatment on Primary Insomnia: A Randomized Controlled Trial</b><br/><i>Lixing Lao, PhD</i></p>  |
| 11:45am - 1:00pm                               | Lunch - Pick up boxed lunch in Williams Family Room beside the ballroom and exhibit area 4 <sup>th</sup> floor   |
| 1:00pm - 2:15pm                                | <p><b><u>Oral Presentations 3: Basic Science</u></b></p> <p><b>Chairperson: Ari Moré, MD, MSc</b></p> <p><b>Structural neuroplasticity in primary somatosensory cortex is linked to altered tactile acuity after acupuncture for chronic low back pain</b><br/><i>Hyungjun Kim</i></p> <p><b>Effects of acupuncture at the ST-36 point on muscle sympathetic nerve activity and blood pressure in normal adults</b><br/><i>Kenichi Kimura, PhD</i></p> <p><b>Nerve-Specific Local and Systemic Analgesic Effects of Acupuncture in Healthy Adults, Measured by Quantitative Sensory Testing</b><br/><i>Alexandra Dimitrova, MD, MA</i></p> <p><b>Comparative Effectiveness of Individual vs Group Acupuncture Therapy for Chronic Pain in an Underserved Population</b><br/><i>Arya Nielsen, PhD</i></p> |
|  | <p><b><u>Oral Presentations 4: Clinical Research</u></b></p>   |
| Sugar Maple<br>Ballroom 4 <sup>th</sup> floor  |  |
| Silver Maple<br>Ballroom 4 <sup>th</sup> floor |  |

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|   | <p><b>Chairperson: Lee Hullender Rubin, DAOM LAc FABORM</b></p> <p><b>Prophylactic Acupuncture Treatment during Chemotherapy in Patients with Breast Cancer - A Randomized Pragmatic Trial with a Retrospective Nested Qualitative Study</b><br/> <i>Benno Brinkhaus, MD</i></p> <p><b>The development of the Therapeutic Alliance in Acupuncture treatments of Gulf War Illness (GWI)</b><br/> <i>Lisa Conboy, MA, MS, ScD, and Saadat Bagherigaleh, MD, MAOM</i></p> <p><b>The evaluation of acupuncture as an adjunct intervention for antenatal depression: a pragmatic randomised controlled trial</b><br/> <i>Simone Ormsby</i></p> <p><b>Reduction of Opioid Use by Acupuncture during Hematopoietic Stem Cell Transplantation: a Randomized Controlled Trial</b><br/> <i>Gary Deng, MD</i></p> |
| <p>2:15pm - 2:45pm</p>  | <p>Break / Networking with Exhibitors</p>  |
| <p>2:45pm - 4:30pm<br/> <i>Grand Maple<br/>       Ballroom 4<sup>th</sup> floor</i></p> | <p><b><u>Session Ten: Acupuncture Beyond the Needle: Understanding Non-Needling Components of Acupuncture Care</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>Non-needling data from study of acupuncture for chronic pain in Vermont Medicaid patients</u></b> - Robert Davis, MS, LAc, <i>Acupuncture Vermont</i></li> <li>• <b><u>Pragmatic trial designs to identify specific effects beyond needling and their impact</u></b> - Hugh MacPherson, PhD, <i>University of York</i></li> <li>• <b><u>Neural mechanisms supporting patient/clinician therapeutic alliance during acupuncture</u></b> - Vitaly Napadow, PhD, LAc, <i>Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School</i></li> </ul> <p><b>Questions/Discussion</b></p>       |
| <p>4:30pm - 4:45pm<br/> <i>Grand Maple<br/>       Ballroom 4<sup>th</sup> floor</i></p> | <p><b>Awards Ceremony and Closing Remarks by SAR Co-Presidents</b></p> <p>Awards will be given out for outstanding presentations in basic science and clinical research categories, supported in part by the <i>Journal of Alternative and Complementary Medicine (JACM)</i>.</p> <p>Plus future SAR meeting announcements:</p> <p>2020 Oncology Acupuncture Symposium: From Neuroscience to Patient Wellbeing - in New York, NY sponsored by and in coordination with Memorial Sloan Kettering Cancer Center (MSKCC): <i>scheduled for spring 2020 – finalized date TBD</i></p>   |

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|                 | SAR's 2020 conference in Seoul, Korea, sponsored by and in coordination with Korea Institute of Oriental Medicine (KIOM) <i>scheduled for fall 2020 – finalized date TBD</i>   |
| 6:00pm - 8:00pm | <b>SAR Ambassadors Dinner</b> ( <i>offsite &amp; invitation only</i> )<br><br><i>Sponsored by Global Advances for Health and Medicine, the official journal of the Academic Consortium for Integrative Medicine and Health</i> |

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## SUNDAY June 30, 2019

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| 9:00am – 12:00pm<br><i>Jost Foundation<br/>         Room 4<sup>th</sup> floor</i> | <b>Patient Centered Outcomes Research Institute Workshop (PCORI)</b> <i>Invitation Only – Closed Session</i><br>This PCORI workshop is funded through a Patient-Centered Outcomes Research Institute (PCORI) Eugene Washington PCORI Engagement Award (EAIN-00041)<br><br>Organized by <b>Remy Coeytaux, MD, PhD</b> , <i>Center for Integrative Medicine, Wake Forest School of Medicine</i> |
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**ORAL ABSTRACTS – ALPHA ORDER BY TITLE****Acupuncture analgesia for low back pain is associated with greater pressure pain-evoked activation in dorsolateral prefrontal cortex and a reduction in hyperalgesia**

*Kylie Isenburg, Massachusetts General Hospital; Ishtiaq Mawla, Massachusetts General Hospital; Jeungchan Lee, Massachusetts General Hospital; Jessica Gerber, Massachusetts General Hospital; Jieun Kim, Korea Institute of Oriental Medicine; Hyungjun Kim, Korea Institute of Oriental Medicine; Suk-Tak (Phoebe) Chan, Massachusetts General Hospital; Ana Ortiz, Massachusetts General Hospital; Ajay Wasan, University of Pittsburgh; Robert Edwards, Brigham and Women's Hospital; Randy Gollub, Massachusetts General Hospital; Jian Kong, Massachusetts General Hospital; Bruce Rosen, Massachusetts General Hospital; Vitaly Napadow, Massachusetts General Hospital*

Purpose Chronic low back pain (cLBP) has been associated with aberrant brain processing and hyperalgesia, assessed by evoked, experimental pain testing. Due to a lack of effective pharmacological treatment, alternative therapies (e.g., acupuncture) have shown promise for cLBP. However, the central mechanisms supporting reduced hyperalgesia and clinical outcomes are unclear. We conducted a longitudinal neuroimaging study with brain response to painful mechanical pressure before and after 4 weeks (6 treatments) of real or sham acupuncture. Methods We enrolled 63 cLBP patients (33 male,  $40.3 \pm 11.7$  years old) and 33 matched healthy controls, with patients randomized to verum (manual acupuncture) or sham acupuncture with variable somatosensory afference (Streitberger sham, mock-laser acupuncture), or a no-treatment/usual care control. LBP bothersomeness over the prior week (0-100, VAS) and LBP intensity ratings (0-100, NRS) prior to and after each treatment were collected. Changes in brain response to evoked leg cuff pain (calibrated to 40/100) was assessed with BOLD fMRI at baseline and post-intervention sessions, and correlated with clinical outcomes. Results We found that within-session reduction in LBP intensity was significant ( $p < 0.005$ ) only for verum acupuncture. Moreover, only for verum acupuncture was within-session change in LBP intensity correlated with change in cuff pain ratings ( $r = 0.55$ ,  $p = 0.02$ ), and with increased cuff pain-evoked activation in right dorsolateral Prefrontal Cortex (dlPFC,  $p < 0.05$ ) following 4 weeks of therapy. Conclusions Thus, cLBP patients treated by verum acupuncture showed greater within-session LBP improvement, which was linked with 1) reduced hyperalgesia and 2) increased pain-evoked activation in the dlPFC, a brain region previously implicated in inhibitory control of nociceptive information. Individuals with chronic pain have shown compromised dlPFC structure and/or function, and acupuncture (particularly manual acupuncture with somatosensory afference targeting deeper subcutaneous receptors) may facilitate cortical anti-nociceptive modulation, leading to reduced hyperalgesia and clinical pain.

**Acupuncture for Persistent Chemotherapy-induced Peripheral Neuropathy Symptoms in Solid Tumor Survivors: A Pilot Study**

**Ting Bao**, Memorial Sloan Kettering Cancer Center; **Patricia Chen**, Memorial Sloan Kettering Cancer Center; **Lauren Piulson**, Memorial Sloan Kettering Cancer Center; **Qing Li**, Memorial Sloan Kettering Cancer Center; **Iris Zhi**, Memorial Sloan Kettering Cancer Center; **Andrew Seidman**, Memorial Sloan Kettering Cancer Center; **Jun Mao**, Memorial Sloan Kettering Cancer Center

**PURPOSE:** Chemotherapy-induced peripheral neuropathy (CIPN) is a common, debilitating side effect experienced by cancer survivors, and current therapies are limited. We compared real acupuncture (RA) to sham acupuncture (SA), and usual care control (UC) for treatment of persistent CIPN.

**METHODS:** Solid tumor survivors with moderate to severe CIPN, defined as numbness, tingling, or pain ratings of  $\geq 4$  on the numeric rating scale (NRS), and lasting for at least three months after neurotoxic chemotherapy completion were randomized to RA, SA, or UC. RA and SA included ten treatments over eight weeks. We measured CIPN symptoms by NRS, Neuropathic Pain Scale; Functional Assessment of Cancer Therapy/Neurotoxicity subscale; and Quantitative Sensory Testing, including tactile threshold measured by Von Frey's filaments, vibration threshold measured by biothesiometer, and thermal threshold measured by TSA-II system. **RESULTS:** Within one year, 75 patients were enrolled and 27 were randomized to RA, 24 to SA, and 24 to UC. 80% were female with a mean age of 61 years (SD 9), and 73% were white. There were 53% breast, 16% colorectal and 8% endometrial cancer survivors. Seven patients (9%) withdrew from the trial, leaving 68 evaluable at Week 8 (primary endpoint). Data analysis is underway; the final results will be presented at the conference. **CONCLUSIONS:** A pilot RCT using appropriate controls on acupuncture for persistent CIPN is feasible. The effect size observed by the pilot study will inform a rigorous and adequately powered trial to establish the definitive efficacy of acupuncture for CIPN.

## **Acupuncture for Stable Angina Pectoris: A Systematic Review and Meta-analysis**

**Mingxiao Yang**, The University of Hong Kong; **Lixing Lao**, The University of Hong Kong

**Aim:** To assess the efficacy and safety of acupuncture for treating patients with stable angina pectoris. **Methods:** Literature search was carried out in 9 electric databases from its inception to August 30, 2017. Relevant information was extracted for risk of bias assessment and data synthesis. The meta-analysis compared acupuncture with standard care alone/sham acupuncture. Primary outcome was angina attack frequency and nitroglycerin use. Secondary outcomes included pain intensity, 6-minute walk test (6MWT), ECG change, etc. The quality of evidence and the efficacy-effectiveness spectrum were rated based on the GRADE and the RITES/PRECIS-II, respectively. **Results:** 17 eligible trials with 1516 participants were included in this study. Risk of bias assessment suggested that the methodological design was inadequate for most trials and associated with unclear to high risk of selection and performance bias. Pooled data analysis demonstrated that acupuncture was more effective than standard care alone and/or sham acupuncture in reducing angina attack frequency (MD: -4.91, 95% CI [-6.01, -3.82],  $p < 0.00001$ ,  $I^2 = 56\%$ ) and alleviating angina-related anxiety (MD: -0.96, 95% CI [-1.16, -0.75],  $p < 0.00001$ ,  $I^2 = 20\%$ ) and depression (MD: -1.23, 95% CI [-1.47, -1.00],  $p < 0.00001$ ,  $I^2 = 0\%$ ). Acupuncture has significantly improved patient's ECG, 6-MWT and other patient-reported outcomes as compared with standard care alone, including the overall effectiveness (RR: 1.25, 95% CI [1.14, 1.37],  $p < 0.00001$ ,  $I^2 = 0\%$ ), symptom relief (RR: 1.25, 95% CI [1.11, 1.39],  $p = 0.0001$ ,  $I^2 = 0\%$ ) and

the SAQ scores. However, nitroglycerin use and angina pain intensity didn't show significant improvement after acupuncture treatment ( $p>0.05$ ). The improvement of clinical outcomes seemed to be lower when acupuncture was compared to sham acupuncture than to standard care alone. No increased risk of adverse events was found in acupuncture. Conclusion: Acupuncture has the potential to be a safe and effective treatment for stable angina pectoris. More studies with sound methodological design are still needed.

## **Acupuncture Promotes Sensorimotor Network Neuroplasticity in Fibromyalgia**

*Ishtiaq Mawla, Chronic Pain and Fatigue Research Center, Department of Anesthesiology, University of Michigan, Ann Arbor, MI; Eric Ichesco, Chronic Pain and Fatigue Research Center, Department of Anesthesiology, University of Michigan, Ann Arbor, MI; Chelsea Kaplan, Chronic Pain and Fatigue Research Center, Department of Anesthesiology, University of Michigan, Ann Arbor, MI; Daniel Clauw, Chronic Pain and Fatigue Research Center, Department of Anesthesiology, University of Michigan, Ann Arbor, MI; Vitaly Napadow, Center for Integrative Pain NeuroImaging (CiPNI), Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School, Charlestown, MA; Richard Harris, Chronic Pain and Fatigue Research Center, Department of Anesthesiology, University of Michigan, Ann Arbor, MI*

**INTRODUCTION** The direct role of somatosensation in modulating acupuncture analgesia is unknown. Fibromyalgia (FM) is a disorder of aberrant central processing of sensory information, and acupuncture has been proposed as a viable non-pharmacological analgesic. We hypothesize that differential degree of somatosensation may produce analgesia via differential effects on the sensorimotor network (SMN) of the brain. **METHODS** Female FM patients ( $N=47$ , age= $42.7\pm 11.7$ y, VAS clinical pain= $4.7\pm 2.0$ ) underwent single-blinded acupuncture 2x/week for 4 weeks, randomized into either 2Hz electro-acupuncture (EA) or mock laser (ML) acupuncture. Since this is an ongoing blinded study, all outcomes presented here are merged across groups. FM patients underwent resting state functional Magnetic Resonance Imaging (rs-fMRI) prior to acupuncture (pre-tx) and after treatment (post-tx). Temporally concatenated rs-fMRI data were entered into a group Independent Component (IC) analysis. The best-fit IC for SMN was entered into a dual-regression analysis, to explore changes in connectivity with acupuncture. Pairwise connectivity between 400 regions of interest was calculated to form individual graphs. Nodal degree and Hub Disruption Index were calculated for each subject, pre-tx and post-tx. **RESULTS** Clinical pain in FM showed a significant improvement following acupuncture ( $p=0.011$ , pre-tx VAS= $4.7\pm 2.0$ , post-tx VAS= $3.99\pm 2.0$ ) (Figure A). Following treatment, SMN showed reduced connectivity to mid-Insula, a key salience processing region, and to default mode network regions (Precuneus and PCC) (Figure B). Increases in SMN connectivity following treatment were observed with SMA and SPL. Moreover, patients showed disrupted degree-based hubs compared to healthy controls ( $Kappa=-0.25$ ), driven primarily by SMN nodes. Disrupted SMN hub topology was successfully reversed with acupuncture treatment ( $Kappa=0.18$ ) (Figure C). **CONCLUSIONS** Clinical pain was improved following acupuncture, which also modulated sensorimotor network connectivity and hub topology. Future analyses will determine if such changes are specific to acupuncture with high (EA) or low (ML) somatosensory afference, and if such neuroplasticity is linked to pain reduction.

## Comparative Effectiveness of Individual vs Group Acupuncture Therapy for Chronic Pain in an Underserved Population

*Arya Nielsen, PhD, Icahn School of Medicine at Mount Sinai, Dept Family Medicine & Community Health; Belinda J. Anderson, PhD, Albert Einstein College of Medicine, Department of Family and Social Medicine; Pacific College of Oriental Medicine; Benjamin Kligler, MD, MPH, National Director, Integrative Health Coordinating Center, U.S. Veterans Health Administration; Claudia Lechuga, MS, Albert Einstein College of Medicine, Department of Family and Social Medicine; Patricia Botet, MS, DACM, Pacific College of Oriental Medicine; Susanna Correia, MS, Pacific College of Oriental Medicine; Valentina Duque, MS, Pacific College of Oriental Medicine; Selina Greene, MS, Pacific College of Oriental Medicine; Donna Mah, MS, Pacific College of Oriental Medicine; Dana Moore, MS, DACM, Pacific College of Oriental Medicine; Amy Pagliarini, MS, Pacific College of Oriental Medicine; Elizabeth Chuang, MD, MPH, Albert Einstein College of Medicine, Department of Family and Social Medicine; Qi Gao, PhD, Albert Einstein College of Medicine, Department of Family and Social Medicine; Eric Gil, BA, Albert Einstein College of Medicine, Department of Family and Social Medicine*

Minority, ethnically diverse and lower socioeconomic populations experience greater prevalence of chronic pain, worse outcomes and limited access to effective therapies. Group acupuncture is proposed as a lower cost option for safety net settings, but research comparing effectiveness to individual session acupuncture is lacking. The goal of this trial is to compare the effectiveness of group and individual acupuncture therapy for underserved patients with chronic neck, back or osteoarthritis pain. Methods: Randomized comparative effectiveness trial in six Bronx primary care practices. Intervention of 12 weekly individual or group sessions of acupuncture therapy that included palpation, Tui na, Gua sha, acupuncture needling and ear seeds. Pain interference at 12 weeks was primary outcome measured by the Brief Pain Inventory (BPI); secondary outcomes included BPI pain severity, PROMIS-10 global health scale and Patient Global Impression of Change. Results: 779 participants were randomized (706 initiated acupuncture); 75% were on Medicaid, 60% reported poor/fair health, and 37% were disabled. Mean number of treatments was 8.1 in both arms. In intent-to-treat (ITT) analysis, 37.5% (individual arm) and 30.3% (group) had >30% improvement in pain interference, failing to meet the non-inferiority margin of 10%. 34.8% of individual and 30.5% of group participants achieved >30% reduction in pain severity. ITT analysis of physical function showed mean increases from baseline of 3.6 in both arms; mean changes in mental health scores were 1.5 (individual) and 1.1 (group); PGIC (better/great deal better) rates were 37.5% in individual and 35.0% in group. Conclusions: Non-inferiority of group to individual acupuncture therapy was not shown at 12 weeks. Clinically meaningful improvement was seen for more than 30% of participants in both arms. Group vs individual setting did not impact treatment initiation or retention. Group acupuncture is feasible and nearly as effective as individual, and therefore a viable option for chronic pain patients.

## Comparative Effectiveness Trial of Acupuncture Versus Cognitive Behavioral Therapy for Insomnia: Implications for Personalized Medicine

*Jun Mao, Memorial Sloan Kettering Cancer Center; Susan Li, Memorial Sloan Kettering Cancer Center; Christina Seluzicki, Memorial Sloan Kettering Cancer Center; Jamie Green, Memorial Sloan Kettering Cancer Center; Adam Schreiber; Sheila Garland, Memorial University*

1. **PURPOSE** Cancer survivors have expressed an interest in using non-pharmacological treatment to manage insomnia, a common and debilitating disorder. However, the comparative effectiveness between acupuncture and cognitive behavioral therapy for insomnia (CBT-I) for this disorder is unknown. 2. **METHODS** We conducted a randomized trial to compare the effectiveness of 8 weeks of acupuncture and CBT-I in 160 cancer survivors. Acupuncture involved stimulating specific points on the body with needles. CBT-I included sleep restriction, stimulus control, cognitive restructuring, relaxation training, and education. The primary outcome was insomnia severity. We also measured pain, fatigue, mood, and quality of life post-treatment (8 weeks) with follow-up until 20 weeks. We used linear mixed-effects models for analyses. 3. **RESULTS** Among participants, the mean age was 61.5 years and 57% were women. Although CBT-I was more effective than acupuncture post-treatment ( $p=0.0007$ ), both acupuncture and CBT-I produced clinically meaningful reductions in insomnia severity (acupuncture: -8.3 points; CBT-I: -10.9 points) and improvements were maintained up to 20 weeks. Participants with mild insomnia were more likely to respond to CBT-I than acupuncture (85% vs. 18%,  $p<0.0001$ ); however, patients with moderate to severe insomnia had similar response rates (75% vs. 66%,  $p=0.26$ ). Both groups had similar improvements in fatigue, mood, and quality of life and reduced prescription hypnotic medication use at the end of treatment; acupuncture was more effective for pain. CBT-I was significantly more effective for those who were male, white, highly educated, and had no pain at baseline ( $p<0.01$ ). 4. **CONCLUSIONS** Both acupuncture and CBT-I produced meaningful and durable improvements, but CBT-I was more effective and should be the first line of therapy. Future adequately powered trials should confirm the relative differences in the comparative effectiveness between these two interventions to inform more tailored interventions for insomnia.

### **Effects of acupuncture at the ST-36 point on muscle sympathetic nerve activity and blood pressure in normal adults**

*Kenichi Kimura, Department of Health Sciences, Kansai University of Health Sciences; Kazuya Ishida, Department of Rehabilitation Medicine, Wakayama Medical University; Noriyo Takahashi, Department of Rehabilitation Medicine, Wakayama Medical University; Yasushi Toge, Department of Rehabilitation Medicine, Wakayama Medical University; Fumihiko Tajima, Department of Rehabilitation Medicine, Wakayama Medical University*

**Objectives:** The muscle sympathetic nerve activity (MSNA) primarily represents the activity of the vasoconstrictor fibers, which innervate skeletal blood vessels, thereby playing an important role in the regulation of blood pressure (BP). While several studies have reported that acupuncture lowers the BP in patients with mild hypertension. However, the mechanism underlying the depressor responses elicited by acupuncture remains unknown. Therefore, the aim of the present study was to determine the effects of acupuncture on MSNA in humans. **Methods:** MSNA was measured in 8 healthy adult males by microneurography evaluation of the left peroneal nerve. BP and heart rate (HR) were simultaneously recorded. MSNA was evaluated as the burst rate, with total MSNA, BP and HR

normalized to their respective baseline values. After 10 min of rest in the supine position, acupuncture was applied to the right ST-36 point in the tibialis anterior muscle for 15 min, with recovery then monitored over a 20-min period. In the sham acupuncture procedure, the sham needle was simply pressed against the skin without penetration and then recoiled into the handle, with the handle positioned over the skin for the same period used during the real acupuncture. Results: While the burst rate and total MSNA remained constant throughout the study, there was a significant decrease in BP during the real but not sham acupuncture procedure between the real and sham acupuncture procedures ( $p < 0.05$ ). HR did not significantly change throughout the study. Conclusions: The results rule out the role of MSNA in the BP fall during acupuncture at the ST-36 point, and suggest possible involvement of other factors in the fall of BP.

## **Efficacy and Safety of Acupuncture Treatment on Primary Insomnia: A Randomized Controlled Trial**

*Shifen Xu, Shanghai Municipal Hospital of Traditional Chinese Medicine, Shanghai University of Traditional Chinese Medicine; Lixing Lao, School of Chinese Medicine, The University of Hong Kong*

Background: Primary insomnia is a prevalent disorder with few satisfactory treatments, which poses great challenges to the physical and mental health of individuals (1). Objective: The objective of this study was to evaluate the efficacy and safety of acupuncture treatment for primary insomnia. Participants and methods: We conducted a single-center, single-blinded, and randomized controlled clinical trial. Seventy-two patients with primary insomnia were randomly assigned into two groups: the acupuncture group and the sham control group. The treatment was given three times weekly for four weeks. Patients were asked to wear sleep monitors and complete questionnaires every two weeks for a total of eight weeks. The primary outcome was the Insomnia Severity Index (ISI) (2). The secondary outcomes were sleep parameters including sleep efficiency (SE), sleep awakenings (SA) and total sleep time (TST) recorded by the Actigraphy, as well as scores of the Self-Rating Anxiety Scale (SAS) and the Self-Rating Depression Scale (SDS). Results: Compared with baseline, patients in both groups had varying degrees of improvements in their sleep conditions. Acupuncture group showed significant improvements in all indicators as compared with baseline. Further analysis adjusted for baseline scores indicated that the ISI improved dramatically in the acupuncture group at two weeks ( $F=11.3$ ,  $p=0.001$ ), four weeks ( $F=33.6$ ,  $p < 0.001$ ), 2 weeks follow-up ( $F=39.4$ ,  $p < 0.001$ ) and four weeks follow-up ( $F=34.1$ ,  $p < 0.001$ ). Similar significant improvements were observed in the SE, TST and SDS scores. Although no differences in SA and SAS were shown between two groups until the end of treatment, remarkable decrements in SA and SAS were found in the acupuncture treatment group after the two-week and four-week follow-ups. Conclusions: Acupuncture treatment is more effective than sham acupuncture treatment in increasing insomnia patients' sleep quality and improving their psychological health.

## Evaluating the efficacy of acupuncture using a dental pain model in healthy subjects – a randomized controlled trial

*Nuno M.P. de Matos, Institute for Complementary and Integrative Medicine, University of Zurich and University Hospital Zurich, Switzerland; Daniel Pach, Charité – Universitätsmedizin Berlin, corporate member of Freie Universität Berlin, Humboldt-Universität zu Berlin, and Berlin Institute of Health, Institute for Social Medicine, Epidemiology and Health Economics; Jing Jing Xing, First Teaching Hospital of Tianjin University of Traditional Chinese Medicine, Tianjin, China; Jürgen Barth, Institute for Complementary and Integrative Medicine, University of Zurich and University Hospital Zurich, Switzerland; Lara Elena Beyer, Institute for Complementary and Integrative Medicine, University of Zurich and University Hospital Zurich, Switzerland; Xuemin Shi, First Teaching Hospital of Tianjin University of Traditional Chinese Medicine, Tianjin, China; Alexandra Kern, Institute for Complementary and Integrative Medicine, University of Zurich and University Hospital Zurich; Nenad Lukic, Center of Dental Medicine, University of Zurich, Zurich, Switzerland; Dominik A. Ettlin, Center of Dental Medicine, University of Zurich, Zurich, Switzerland; Mike Brügger, Center of Dental Medicine, University of Zurich, Zurich, Switzerland; Claudia M. Witt, 1Institute for Complementary and Integrative Medicine, University of Zurich and University Hospital Zurich, Switzerland*

Various animal models for neuropathic pain, inflammatory pain, cancer-related pain, and visceral pain already exist in acupuncture research. We used a newly validated human pain model and examined whether acupuncture can influence experimentally induced dental pain. For this study, we compared the impact of real acupuncture, sham acupuncture and no acupuncture on experimentally induced dental pain in thirty-five healthy men who were randomized to different sequences of all three interventions in a within-subject design. BORG CR10 pain ratings and autonomous responses (electrodermal activity and heart rate variability) were investigated. An initial mixed model with repeated measures included preintervention pain ratings and the trial sequence as covariates. The results showed that acupuncture was effective in reducing pain intensity when compared to no acupuncture, showing a medium Cohen's d effect size of 0.56. The comparison to the sham acupuncture intervention revealed a small Cohen's d effect size of 0.25. No differences in autonomous responses between real and sham acupuncture were found during the intervention procedures. Conclusion: This study established a dental pain model for acupuncture research and provided evidence that, compared to a no treatment condition, experimentally induced dental pain in humans can be influenced by real acupuncture. Trial registration: The study was registered at [clinicaltrials.gov](https://clinicaltrials.gov) (registration ID: NCT02589418)

## Intersections of Practice, Research, and Policy: Update on Washington State Labor & Industries Coverage of Acupuncture for Injured Workers

*Lisa Taylor-Swanson, College of nursing, University of Utah; Jennifer Stone, Indiana University School of Medicine, Department of Anesthesia; Megan Gale, Washington East Asian Medicine Association; Catherine Dayhoff, Washington East Asian Medicine Association*

**Background:** This abstract describes the use of research literature on acupuncture to inform policy making in Washington State. **Introduction:** Washington East Asian Medical Association (WEAMA) engaged in formal conversations with Washington State Department of Labor & Industries (L&I) for twenty years in an attempt to inform and influence L&I policy to include East Asian Medicine Providers (EAMPs). WEAMA established a research committee in 2013 to conduct a Systematic Review (SR) of literature on acupuncture for low back pain. The WEAMA SR interpreted sham acupuncture as an active control and presented these findings to the Medical Director of L&I in 2016. L&I subsequently initiated a pilot study of EAMPs providing care to injured workers. **Methods:** L&I's pilot study enrolled 208 EAMPs. EAMPs were allowed to provide 10 or fewer treatments to injured workers experiencing low back pain. The pilot was congruent with L&I Healthy Worker 2020 Strategies and gathered data to inform Quality Purchasing Considerations, including: 1) accountable providers [Graded Chronic Pain Scale (GCPS), Oswestry Disability Index(ODI)], 2) coordinated best practice care (required referral, 10 treatments max), 3) best practices (required usage of GCPS, ODI), and 4) incentives (L&I developed local code). **Results:** To date, L&I paid 1875 claims from 54 providers (26% of providers). Functional questionnaires were submitted (n=567) for 269 claims from 49 unique providers; 131 patients have completed treatment. A median 58.5 days elapsed from beginning to end of acupuncture treatment. There have been no adverse events. **Discussion:** Future steps include filing L&I rules and target adoption of new rules June, 2019. EAMPs will be the first profession added to L&I in two decades. However, acupuncturists will only be allowed to treat low back pain. Future advocacy by WEAMA will ask L&I to initiate rule making to allow acupuncture to be provided to injured workers across conditions.

## **Nerve-Specific Local and Systemic Analgesic Effects of Acupuncture in Healthy Adults, Measured by Quantitative Sensory Testing**

*Alexandra Dimitrova, Oregon Health & Science University; Dana Colgan, Oregon Health & Science University; Barry Oken, Oregon Health & Science University*

**OBJECTIVE:** This study aims to assess whether acupuncture delivered over two peripheral nerves in the leg produces greater analgesia, compared to acupuncture over a single leg nerve. Our secondary goal is to compare the local vs systemic analgesic effects of acupuncture. **BACKGROUND:** Studies on neuropathic pain have shown that acupuncture-induced analgesia is achieved when treatment involves acupoints in close association with large peripheral nerves. Whether these analgesic effects are local or systemic and whether there is an acupuncture dose response remain unknown. **METHODS:** 28 healthy volunteers aged 18-45 were randomized to electroacupuncture over the deep peroneal (DP) nerve or over the deep peroneal and posterior tibial nerves (DPTN). Baseline and post-acupuncture QST were obtained both locally at the proximal calf and great toe and systemically at the hand. Results were analyzed using factorial repeated measures analysis of variance (ANOVA), on each of the QST variables – cold detection threshold (CDT), vibration detection threshold (VDT), heat pain threshold (HP0.5) and heat pain 5 on the visual analog scale (HP5.0). Location (leg/arm) and Time (pre/post-acupuncture) were within-subject factors. Intervention (DP/DPTN) was between-subject factor. **RESULTS:** CDT was increased locally in the calf(p <0.001) and systemically in the hand(p <0.001).



VDT was increased locally in the toe ( $p < 0.001$ ), but not in the hand. HP0.5 was increased locally in the calf ( $p < 0.001$ ) and systemically in the hand ( $p < 0.001$ ). HP5.0 was increased in the calf ( $p = 0.002$ ) and in the hand ( $p < 0.001$ ), with the systemic effect being significantly greater than the local ( $p = 0.004$ ). In all of the above modalities there was no difference between the low-dose (DP) and high-dose (DPTN) acupuncture groups. **CONCLUSIONS:** Acupuncture causes comparable local and systemic analgesic effects in cold detection and heat pain perception and only local effects in vibration perception. There is no clear acupuncture dose response to these effects.

## **Prophylactic Acupuncture Treatment during Chemotherapy in Patients with Breast Cancer - A Randomized Pragmatic Trial with a Retrospective Nested Qualitative Study**

*Benno Brinkhaus, Institute of Health, Institute for Social Medicine, Epidemiology and Health Economics, Charité – Universitätsmedizin Berlin, Germany; Barbara Kirschbaum, Jerusalem Hospital Hamburg, Germany; Barbara Stöckigt, Institute of Health, Institute for Social Medicine, Epidemiology and Health Economics, Charité – Universitätsmedizin Berlin, Germany; Sylvia Binting, Institute of Health, Institute for Social Medicine, Epidemiology and Health Economics, Charité – Universitätsmedizin Berlin, Germany; Stephanie Roll, Institute of Health, Institute for Social Medicine, Epidemiology and Health Economics, Charité – Universitätsmedizin Berlin, Germany; Martin C Carstensen, Jerusalem Hospital Hamburg; Claudia M Witt, Institute for Complementary and Integrative Medicine, University Hospital Zurich, Switzerland*

**Aim:** We investigated the effectiveness of additional prophylactic acupuncture during chemotherapy compared to standard treatment alone in breast cancer patients. **Methods:** In a pragmatic trial newly diagnosed breast cancer patients were randomized to additional acupuncture treatments over six months or standard care alone (control). Primary outcome was disease specific quality of life (FACT-B, higher values = better results); analysed by ANCOVA with baseline score as covariate. Secondary outcomes included cancer related fatigue (FACIT), side effects of the cancer treatment (FACT-GOG-NTX), general health related quality of life (SF-12), patient satisfaction and overall treatment effect. Qualitative semi-structured interviews were conducted with ten patients per study intervention group about their subjective experiences. **Results:** 150 women (mean age 51.0 (SD 10.0) years) were randomized. For the primary endpoint FACT-B total score after 6 months no statistical significant difference was found between groups (acupuncture: 103.5 (95%CI 99.8; 107.2); control (101.4; 97.5; 105.4); difference 2.0 (-3.4; 7.5)  $p = 0.458$ ). Secondary outcomes yielded similar results although most patients in the acupuncture group rated the overall effectiveness as good or very good (93%) and 91% were satisfied with the acupuncture. Qualitative content analyses showed that patients in the acupuncture group described positive effects on psychological and physical well-being. For both patient groups coping strategies were more important than reducing side effects of chemotherapy. **Conclusions:** Breast cancer patients receiving prophylactic acupuncture during chemotherapy did not show better quality of life or less side effects of chemotherapy in the questionnaires in contrast to the reported positive effects in the qualitative interviews. Coping strategies for cancer seem to be more important than preventive acupuncture strategy.

## **Reduction of Opioid Use by Acupuncture during Hematopoietic Stem Cell Transplantation: a Randomized Controlled Trial**

**Gary Deng**, Memorial Sloan Kettering Cancer Center; **Sergio Giralt**, Memorial Sloan Kettering Cancer Center; **David Chung**, Memorial Sloan Kettering Cancer Center; **Heather Landau**, Memorial Sloan Kettering Cancer Center; **Jonathan Siman**, Seattle Cancer Alliance; **Qing Li**, Memorial Sloan Kettering Cancer Center; **Kaitlyn Lapen**, University of Illinois in Chicago; **Jun Mao**, Memorial Sloan Kettering Cancer Center

**BACKGROUND:** Pain is one of the top symptoms associated with high dose chemotherapy experienced by patients undergoing hematopoietic stem cell transplantation (HSCT). Patients usually receive pharmacologic interventions, especially opioids, which is associated with side effects. Non-pharmacologic interventions, such as acupuncture, need to be studied for incorporation into standard pain management plans. We conducted a randomized sham-controlled trial to evaluate acupuncture for symptom management and reduction of pain medication use in this setting. **METHODS:** Adult patients with multiple myeloma undergoing high dose melphalan followed by autologous peripheral blood HSCT were randomized to receive either true (TA) or sham acupuncture (SA) once daily for five days starting on the day after chemotherapy. Pain scores and use of pain medications were assessed at baseline, and at day 5, 15 and 30 days after transplantation. The HCT team, patients and outcome evaluators were blinded to group assignment. **RESULTS:** Among 60 evaluable participants, pain scores did not differ significantly between the two groups at day 5, 15 and 30. Patients who received SA had greater than 5 times the odds of increasing pain medications from baseline compared with those who received TA (OR 5.31, 95% CI 1.35 to 20.93, P=0.017). Among patients who were opioid non-users at baseline, all 15 patients in the TA group remained free from opioids at the end of the study. In contrast, 20% of those in the SA group (4 of the 20 patients) started to use opioids after chemotherapy and stem cell infusion (Day 5) and 40% (8 of the 20) had become opioid users by Day 30 after HSCT (Fisher exact test P=0.006). **CONCLUSIONS:** True acupuncture was associated with reduced use of pain medications and prevented opioid non-users from using opioids after HSCT when compared to sham acupuncture. These findings need to be confirmed in a future definitive study.

## **Structural neuroplasticity in primary somatosensory cortex is linked to altered tactile acuity after acupuncture for chronic low back pain**

**Hyungjun Kim**, Korea Institute of Oriental Medicine; **Ishtiaq Mawla**, Department of Radiology, Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School; **Jeungchan Lee**, Department of Radiology, Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School; **Kylie Isenburg**, Department of Radiology, Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School; **Jessica Gerber**, Department of Radiology, Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School; **Jieun Kim**, Korea Institute of Oriental Medicine; **Suk-Tak Phoebe Chan**, Department of Radiology, Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School; **Ana Ortiz**, Department of Radiology, Martinos Center for Biomedical Imaging,

*Massachusetts General Hospital, Harvard Medical School; Ajay Wasan, Department of Anesthesiology, Center for Pain Research, University of Pittsburgh; Robert Edwards, Department of Anesthesiology, Perioperative and Pain Medicine, Brigham and Women's Hospital, Harvard Medical School; Chantal Berna, Department of Radiology, Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School; Randy Gollub, Department of Psychiatry, Massachusetts General Hospital, HMS; Jian Kong, Department of Radiology, Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School; Bruce Rosen, Department of Radiology, Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Harvard Medical School*

We previously demonstrated structural neuroplasticity in primary somatosensory (S1) cortex in carpal tunnel syndrome. Whether this linkage extends to other chronic pain patients and/or is associated with tactile acuity is unknown. In this study, we evaluated structural neuroplasticity in the S1-adjacent white matter (WM) and tactile acuity following acupuncture in chronic low back pain (cLBP) patients. We enrolled 103 cLBP patients and 50 age-matched healthy controls. After baseline clinical and MRI evaluation, 78 patients were randomized to verum acupuncture (n=18, 6 treatments over 4 weeks), or matched sham acupuncture (n=18), mock laser acupuncture (n=19), or no-treatment usual care (n=23) control groups. Whole-brain diffusion-weighted MRI was used to quantify WM microstructural parameters. The S1-back/hand regions were defined by fMRI localizer run. Mean fractional anisotropy (FA) on the S1-back/hand was calculated using FSL-TBSS. Tactile acuity was evaluated using 2-point discrimination threshold (2PDT) testing on right lower back, and middle phalange of right index finger, at baseline and following 4-weeks of therapy/usual care. Larger (worse) 2PDT scores were found for cLBP compared to HC over the back (t-test, P=0.01) at baseline, but not the hand (P=0.29). Baseline S1-back FA was reduced in cLBP compared to HC (P<0.05). Following therapy, as no differences were noted for 2PDT-back/hand between control groups (sham-acupuncture/mock-laser/usual-care), these groups were combined into a single control group. Verum acupuncture improved 2PDT-back more than control (P=0.03), while no longitudinal change was found for 2PDT-hand (P=0.57). FA change in right S1-back was associated with 2PDT-back change for verum acupuncture (Spearman's rho=-0.54, P=0.02), but not control (rho=-0.11, P=0.44). Chronic LBP patients demonstrated elevated 2PDT at the back and reduced FA for the WM feeding the back representation in S1 cortex. Only verum acupuncture improved tactile acuity on the back, and greater 2PDT improvement was linked with improved S1-back WM microstructure.

## **The development of the Therapeutic Alliance in Acupuncture treatments of Gulf War Illness (GWI)**

*Saadat Bagherigaleh, New England School of Acupuncture at MCPHS University; Beth Ann Schmitt, New England School of Acupuncture at MCPHS University; Lisa Conboy, New England School of Acupuncture at MCPHS University*

Purpose: To evaluate therapeutic alliance (TA) between the patient and the practitioner during a course of acupuncture treatments of Gulf War Illness (GWI) using the Working Alliance Inventory (WAI). Data comes from a completed 3.5-year Army-funded RCT. Individualized acupuncture

treatments were administered by practitioners in the community for a possible treatment window of 6 months. Thirty-two experienced practitioners were given training in the known medical information of GWI and treated the range of GWI presentations in the best manner they knew, with only limited restriction (e.g. herbs were not allowed). Methods: To better understand how TA changes over time, we calculated and graphed WAI scores for both study groups: biweekly treatment, 2 months of wait-list followed by weekly treatment. Paired-samples t-tests are used to measure improvement in WAI-SR scores for baseline and endpoint (6 months) in all factors (task, bond and goal). Results: As the study progressed over time, dyads reported increasingly more positive scores on the all 3 WAI-SR factors. Although, both the weekly dose and biweekly dose groups approximately had same WAI-SR scores at the endpoint (6 months), WAI-SR initial scores in all 3 factors were lower in the weekly dose group compared to the biweekly group. There was a significant improvement in WAI-SR scores for baseline (2 months) and endpoint (6 months) in all 3 factors in the weekly group using paired-samples t-test ( $p < 0.01$ ). Conclusion: Our findings indicate importance of time and receiving treatments in gaining and improving therapeutic alliance. Our results also emphasized adverse effects of being in waiting list on initial therapeutic alliance. We postulated that a two-month waiting list is superior to the use of sham acupuncture, as a systematic review demonstrated that sham acupuncture might be as effective as true acupuncture.

### **The evaluation of acupuncture as an adjunct intervention for antenatal depression: a pragmatic randomised controlled trial**

*Simone Ormsby, NICM, Western Sydney University; Caroline Smith, NICM, Western Sydney University; Hannah Dahlen, School of Midwifery, Western Sydney University; Phillipa Hay, Chair of Mental Health, Western Sydney University*

Abstract Background Preliminary clinical trial evidence is suggestive that acupuncture may provide a promising adjunct treatment for the management of depression. Findings in antenatal populations are similar, however study numbers are small, hence further investigation is required. This study therefore aimed to additionally explore the feasibility of utilising acupuncture for the management of antenatal depressive symptomologies. Methods Fifty-seven women meeting Edinburgh Postnatal Depression Scale (EPDS) scores of  $\geq 13$  were randomised to individually tailored depressed specific acupuncture, progressive muscle relaxation attention comparator, or treatment as usual. Women in either treatment arm received weekly one-hour sessions in the antenatal clinics of two Sydney hospitals, from gestation weeks 24 to 31. Evaluations included: EPDS; Depression, Stress and Anxiety Scale; and World Health Organisation Quality of Life Scale at baseline, weeks four and eight, and six-weeks postnatal; weekly and six-weeks postnatal monitoring of distress via the Kessler 6; six-weeks postnatal assessment of adjustment to mothering using the Being a Mother scale; and numerous birthing and postnatal outcomes. Results Forty-six women completed all data sets. Findings demonstrated significantly reduced end of the intervention EPDS ( $p < 0.001$ ), stress component of the DASS-21 ( $p = 0.002$ ), and K6 ( $p < 0.001$ ) scores for acupuncture compared to progressive muscle relaxation and treatment as usual. No between group differences were observed for other pregnancy, birthing ( $n = 57$ ) or postnatal outcomes ( $n = 45$ ). The individually tailored acupuncture intervention was well-tolerated and free from adverse events. Conclusion The findings from this feasibility study demonstrated a

willingness by pregnant women to incorporate acupuncture in with conventional management approaches when continuing to suffer from depressive symptomologies. In addition, women who were unwilling to pursue standard therapies similarly exhibited a desire to explore acupuncture as an additional therapeutic possibility. Results obtained provided further support that acupuncture may be beneficial for the management of antenatal depression, stress and distress.

### **The role of dopaminergic synapse signaling pathway in prefrontal cortex in the antidepressant effect of electroacupuncture in the chronic unpredictable mild stress rat model**

*Jialing ZHANG, School of Chinese Medicine, The University of Hong Kong; Jiping ZHANG, School of Traditional Chinese Medicine, Southern Medical University; Shanshan QU, School of Traditional Chinese Medicine, Southern Medical University; Lixing LAO, School of Chinese Medicine, The University of Hong Kong; Yong HUANG, School of Traditional Chinese Medicine, Southern Medical University*

Background: Depression is a global debilitating mental disorder. Current studies show electroacupuncture (EA) with selective serotonin reuptake inhibitors (SSRIs) may lead to earlier and better antidepressant effect, but the therapeutic mechanisms remain inconclusive. Objective: To reveal proteins and pathways of prefrontal cortex (PFC) participated in the therapeutic mechanisms of EA. Methods: A rat model of depression was established using chronic unpredictable mild stress (CUMS). Behavioural tests were used to evaluate antidepressant effect following one week of intervention with EA, Paroxetine, or EA combined with Paroxetine. Isobaric tags for relative and absolute quantitation (iTRAQ)-based proteomics was applied to identify differentially expressed proteins. GO annotation and pathway analysis were used to identify molecular functions, biologic processes, cellular components and participated pathways. Targeted proteins were validated by Western Blotting. Transmission electron microscope was used to observe ultrastructural changes. Results: After one week of intervention, EA, Paroxetine and EA Plus Paroxetine all had significant improvement in weight gain, sucrose preference, and total travelled distance compare to sham-vehicle control ( $P < 0.05$ , respectively). However, there was no significant difference among these three groups. 4103 proteins and 170 differentially expressed proteins were identified. GO annotation and pathway analysis suggested the dopaminergic synapse pathway may play a major role in the antidepressant mechanism of EA. We further validated two key enzymes of the pathway, tyrosine 3-monooxygenase (TH) and aromatic-L-amino-acid decarboxylase (DDC). EA alone significantly upregulated TH, and EA plus Paroxetine significantly unregulated DDC ( $P < 0.05$ , respectively). Repair of injured neurons and synapses in PFC was observed in rats received EA and/or Paroxetine. Conclusions: This study suggested that EA and/or SSRIs may possess antidepressant effect on CUMS-induced depression rat model. The mechanism of antidepressant effect of EA may be via dopaminergic synapse signaling pathway and dopaminergic synaptic plasticity of PFC may likely associated with the synergistic effect of EA and drug.

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