

Inaugural Integrative Medicine Research Forum: An Overview

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Those who attended the Inaugural Integrative Medicine Research Forum hosted by the Osher Center for Integrative Medicine had the unique experience of viewing an interactive research network, 670 individuals representing 19 different institutions, seeing poster presentations from 38 investigators, and hearing presentations that described impressive clinical and educational programs that are underway in the Boston area. Throughout the proceedings, two themes emerged: conventional medicine has suffered from artificial boundaries, and collaboration is essential if integrative medicine is to fulfill its promise.

The forum, held on November 3, 2014, is widely considered as having been pivotal and historic: for the first time, Boston-wide research activity was presented and quantified. This led **Helene Langevin, MD**, Osher Center Director, to call for a new era of collaboration. “We must continue to build bridges, cultivate collaborations and fuel our collective efforts to integrate integrative medicine,” she said, noting that Boston is a unique environment for integrative medicine and has multiple active centers.

“Today’s meeting is a physical embodiment of our network map,” Dr Langevin said. “We hope that some of you will find new colleagues with common interests and new opportunities for collaborating, sharing, and leveraging resources.”

David Golan, MD, PhD, Dean for Graduate Education at Harvard Medical School (HMS), reminded attendees that the school’s academic inquiry in the field of complementary medicine officially began in 2001 with the establishment of the Osher Center, first directed by **David Eisenberg, MD**, a site which has since evolved to become a “center without walls.” He noted that, long before the center was established, Dr Eisenberg and **Herbert Benson, MD**, were respected pioneers in the field.

In his remarks, Dr Benson, Director Emeritus of the Benson-Henry Institute for Mind Body Medicine at Massachusetts General Hospital (MGH) and an HMS faculty member, provided a historical perspective on mind-body medicine that emphasized Harvard’s role. “Before the scientific method was developed, there was *only* integrative medicine,” Dr Benson noted. “At Harvard, Oliver Wendell Holmes studied the impact of the patient-doctor

relationship, and in the 1920s and 1930s, Walter Cannon identified the fight or flight response.” Many years later, Dr Benson studied the physiological impact of meditation and coined the term “relaxation response.”

The two keynote speakers are experts in the study and creation of networks. **Albert-Laszlo Barabasi, PhD**, a physicist, is Director of the Center for Complex Network Research at Northeastern University and studies the common principles of networks, from molecules to individuals. Dr Barabasi’s discussion of how nodes eventually join each other to form a network illuminated the interactive network map of Boston-area research that Dr Langevin presented earlier.

“Most networks are not random. Rather, they grow by preferential attachment,” he explained. “New nodes prefer to link to highly connected nodes; this results in a robust network and the presence of hubs. Node failure can lead to network breakdown. Hubs must be protected if the network is to remain intact.” This is true for social as well as biological networks. If we are to better understand disease, we must understand the underlying network. “So many diseases have common genetic origins,” Dr Barabasi noted.

David King, founder and CEO of Exaptive Inc, a firm that builds tools to visualize data, described how this technology can be used for the cross-fertilization of ideas and to facilitate innovation. Exaptive staff collaborated with the Osher Center and Harvard Catalyst to create the interactive map displaying research activity, where each node represents an investigator.

“Our goal is to communicate the data in ways that facilitate discovery,” Mr King explained. “How can we connect people in ways that make them more innovative?” He showed a network of scientists that formed around 413 study subjects—patients with multiple sclerosis (MS) whose blood samples are kept in a common biobank—and suggested that more is known about these patients than any other MS patients in the world.

“We created ‘study stacks’ that show the overlap among institutions and pharmaceutical firms,” Mr King explained. “Our goal is to tell these organizations ‘you’ve all studied the same 413 people,’ which could lead to real, not virtual, collaboration.” He made the case for cognitive networks that harness meta-data and connect people and their ideas.

Before the poster synopsis medley began, **Peter Wayne, PhD**, Research Director at the Osher Center, explained that 12 investigators—out of 38—had been selected to summarize their work in one minute. “The idea for this medley grew out of our network vision: catalyzing lateral collaborations and interdisciplinary work, but also vertical ones,” Dr Wayne said. “We want to bring together the junior scientists and give them a voice. We believe they are the ‘new nodes’ that will come into our network and spark new ideas.”

The following individuals presented their work during the poster synopsis medley: Lisbeth Berrueta, MD, PhD; Bethany Butzer, PhD; Gaelle Desbordes, PhD; Run Feng; Ronald Garcia, MD, PhD; Paula Gardiner, MD; Adam Gonzalez, MD; Brian Gow; Kathryn Hall, PhD; Mckenna Longacre; Claudia Trudel-Fitzgerald, PhD; and David Vago, PhD.

An overview of integrative medicine programs was chaired by **Vitaly Napadow, PhD**, from the Martinos Center for Biomedical Imaging at MGH, who introduced nine speakers, beginning with Dr Wayne, who described the Osher Center's research program. "Our research program is inspired by a broader definition of integrative medicine that includes coordinated delivery of conventional and complementary therapies, dissolving artificial boundaries between sub-disciplines of conventional medicine and linking basic physiological processes to treatment mechanisms and healthcare delivery," he said.

The Osher Center has three areas of focus: musculoskeletal health, healthy aging, and mind-body exercise. Dr Wayne described three studies that are underway: the effect of stretching on inflammation, tai chi's impact on cognitive motor interactions and a comparison of treatment for low-back pain wherein half the patients are treated by Osher clinicians, the other half with traditional treatment at Brigham and Women's Hospital.

Greg Fricchione, MD, Director of the Benson-Henry Institute (BHI), described a wide range of programs and research that are underway, much of it aimed at optimizing health, reducing stress and building resiliency. "We are increasingly focused on public health as a strategy," Dr Fricchione said. "In the 21st century, stress-related, non-communicable diseases are going to sink us. We're trying to advance our understanding of stress."

BHI clinical programs include integrative medicine evaluations and specialty programs in GI, pediatrics, women's health, geriatrics, and cardiology, as well as a number of military initiatives, school health promotions, and global initiatives, largely in stress reduction. Research includes studies on biomarkers in stress management and genomics and epigenetics investigations.

Jennifer Ligibel, MD, Director of the Zakim Center for Integrative Therapies at Dana-Farber Cancer Institute, described the center's mission: providing complementary therapies and education to patients, families, and staff and advancing knowledge of the effectiveness of outcomes of integrative therapies through research.

"As an oncologist, I recognize that, many times, the lives we give back to people are vastly different than the lives they came in with at the time of their diagnosis," said Dr Ligibel. "People are living with side effects from their therapy and symptoms from their cancer. We seek to integrate therapies that are not traditionally part of oncology care into

their treatment.” She described research on the impact of acupuncture, including on neuropathy, and a randomized pilot study aimed at helping patients to manage their weight, alleviate stress, and sleep better.

Gloria Yeh, MD, MPH, Director of the Harvard Medical School Research Fellowship in Integrative Medicine Program at Beth Israel Deaconess Medical Center (BIDMC), focused on this educational initiative, which is funded by the National Center for Complementary & Alternative Medicine and whose goal is to prepare individuals for a career in academic medicine. “For their research project, fellows are mentored across Harvard institutions and disciplines, and many graduates have gone on to lead programs here at Harvard and nationwide,” said Dr Yeh, who noted that 25 fellows have graduated since 2000.

Fellowship projects have included mindfulness approaches for obesity, interventions for traumatic brain injury, yoga for pregnancy-related back pain, addictions, anxiety, and aging biomarkers. Elsewhere at BIDMC, two studies are underway within the Division of General Medicine looking at mind-body exercise, tai chi, and meditative breathing for patients with chronic obstructive pulmonary disease. Clinical initiatives include the Cheng-Tsui Center for Integrated Health, which provides a variety of therapies to primary care patients at Healthcare Associates.

Charles Berde, MD, PhD, Chief of the Division of Pain Medicine at Boston Children’s Hospital (BCH), described the program’s long history of involving integrative medicine. “A major part of our work is understanding how to intervene in the cycle of disability in many pain syndromes and how to prevent chronicity in adults,” Dr Berde explained, noting that brain imaging plays an important role in the research.

Dr Berde has studied analgesics and the role of placebo in children. “There are a set of ethical and practical constraints in how one cares for a child who is in severe pain and how one considers the possibility of giving them a placebo,” he explains. Colleagues at BCH study acupuncture, yoga, Reiki, therapeutic touch, art, and music therapy for procedural pain and distress. The Center for Families has emerged as a home for complementary and alternative medicine at BCH.

Robert Saper, MD, MPH, who serves as Director of Integrative Medicine at Boston Medical Center (BMC), spoke about the disparities that exist based on use of complementary medicine according to race, income, and education level. “We established the program to have an impact on the quality of life of the urban underserved by providing access to integrative medicine clinical services, research and education,” he explained. The following programs are

provided either for free or on a sliding scale: acupuncture, massage, integrative medicine consults, integrative medicine group visits, integrative cancer care, and breathing techniques.

Back to Health is a comparative effectiveness, randomized trial studying yoga, physical therapy and education in 320 participants with chronic low back pain. Another study is evaluating a group health visit model for patients with pain and depression. A new grant will fund the study of PTSD in returning veterans using yoga for back pain as the entrée.

Richard Glickman-Simon, MD, Director of the Pain Research and Policy Program at Tufts University School of Medicine (TUSM), described educational initiatives, beginning with efforts to bring integrative medicine into the medical school curriculum: by translating the evidence base for complementary therapies; presenting the role of unconventional therapies in a conventional practice, including the nature and use of clinical placebos; and having the students experience integrative therapies.

“Assuming that most of our students will go on to be straight-up conventional allopaths, how can they help their patients without necessarily being trained in these therapies?” Dr Glickman-Simon asked. “What is the minimum standard in order to provide quality care, and how far will they be able to go in actually integrating these therapies?”

The master’s program in pain research, education, and policy at TUSM includes coursework in evidence-based complementary and integrative medicine and partners with New England School of Acupuncture to offer a dual-degree program. Research initiatives are underway in the Department of Rheumatology’s Center for Complementary & Integrative Medicine and at the Friedman School of Nutrition & Science Policy.

Zev Schulman-Olivier, MD, Executive Director of the Center for Mindfulness and Compassion at Cambridge Health Alliance (CHA), described how a CME program for meditation and psychotherapy started 10 years ago and received a strong response. A meditation sitting group subsequently formed, and ultimately the center was born. “We have five different areas of activity, including patient care, provider and employee self-care, professional and community training, and several research areas,” said Dr Schulman-Olivier.

The MINDFUL-PC Project is research inspired by the Affordable Care Act’s encouragement of patient-centered medical homes, with the integration of wellness and mindfulness. “We are beginning to train mental healthcare providers, along with as many primary care providers who are open and willing, to deliver mindfulness-based interventions,” he explained. “Our goal is to train 1,000 patients in mindfulness and then look at the effects of both provider training and patient training.”

Ted Kaptchuk, Director of the Program in Placebo Studies and the Therapeutic Encounter (PiPS) at HMS, explained the placebo effect. “It’s actually everything that surrounds an inert pill—words of kindness, acts of decency, the laying on of hands, commitment to be present and being an empathetic witness, rituals, words, silence and attentive listening,” Dr Kaptchuk said. “Our placebo studies use the fact that our culture has developed this technique of giving people fake pills to separate out something called an active ingredient from all the things that surround the active ingredient and quantifying it. It’s really not much more than the actual common ingredients that all healers have.”

The Martinos Center at MGH is an important partner, as are colleagues at BIDMC who are unraveling the impact of placebos vs. medication and have shown that placebos can work like a drug. Harvard University faculty in arts and sciences, including in the history of science, anthropology, and quantitative social sciences, also collaborate with PiPS.

Darshan Mehta, MD, MPH, Medical Director at the BHI and Associate Education Director at the Osher Center, posed the question: How do we teach the next generation of healthcare providers in all the different forms of medicine? “The first mission is to provide integrative medicine educational opportunities to students, trainees, and providers,” said Dr Mehta. “As we think about our future endeavors, we plan on developing educational and clinical networks, similar to the research network we learned about today.”

Self-care practices are important going forward. A study currently underway at MGH is providing internal medicine and psychiatry interns with stress-management and resiliency training. “This is really novel; there is nothing else like this,” he said, noting that the trainees will be studied to see if there is an impact on how they provide care to patients. Dr Mehta announced a CME conference on Mind Body Medicine and Cardiovascular Health on May 1, 2015, and the new Integrative Medicine Grand Rounds, beginning March 3, 2015, which will feature multidisciplinary case presentations.

A panel discussion and audience Q&A was directed by **Steven Schachter, MD**, Chief Academic Officer at the Center for Integration of Medicine & Innovative Technology (CIMIT) and Education Director at the Osher Center. Dr Schachter first invited **Michele Mittelman, RN, MPH**, Founder and CEO of *Global Advances in Health and Medicine (GAHMJ)*, to address the gathering. Forum attendees were given free 6-month, online subscriptions to *GAHMJ*, an international, peer-reviewed medical journal launched in 2012.

“In a way, *Global Advances in Health and Medicine* reflects the cognitive network that was referenced earlier,” said Ms Mittelman. “There is such enthusiasm here today, but we have to ask, ‘Where can this go?’ What will the next 10 years look like?”

Drs Langevin and Wayne announced 2014 grant awardees in two categories. Three Osher Pilot Research grants at \$33,000, which seed collaborative projects, were awarded to Ann Marie Zavacki, PhD, Selma Holden, MD, and co-PI's James Balschi, PhD, and Alexander Lin, PhD. Two new pre-doctoral fellowship grants for \$24,000 over 2 years, which encourage PhD students to extend their projects in a translational direction, were awarded to PhD candidates Illia Droujinine and Joy Liao.

Dr Eisenberg announced the best poster award to Gail Desbordes, PhD, whose work is on the impact of meditation on brain structure. He then reflected on the evolution of integrative medicine while offering a challenge to the many trainees present, as well as words of gratitude.

"More than 30 years ago, a few courageous people in this town took it upon themselves to ask some fundamental questions about the nature, utility, and value proposition of 'the other medicine'—non-conventional medicine, which would become complementary and alternative medicine," he said. "It was pre-internet, pre-MRI and the pre-genomic era. Our tools were relatively primitive, but we began," Dr Eisenberg said.

"I encourage you to ask the next provocative, incendiary questions. Have that courage. Don't ask incremental questions; they won't change the world."

Dr Eisenberg closed by acknowledging the Bernard Osher Foundation—specifically the generosity and foresight shown by Mr Osher. "We are all beneficiaries of the Osher Foundation's extraordinary investment in this area," he said. "I salute them."

Dr Langevin closed the session by asking that attendees consider forming collaborative groups. "We need cross-institutional teams," she noted. "The Osher Center will try to match individuals and groups with mutual interests."

She encouraged attendees to keep a collective eye on the interactive network map, which will be joined by additional maps that reflect educational and clinical initiatives. "I believe our integrative network is in the self-awareness phase," said Dr Langevin. "Let's work together to help it grow and prosper."