CONTINUING MEDICAL EDUCATION

Presented by
Department of Plastic and Reconstructive Surgery & Department of Neurosurgery

Fourth Annual
Selected Topics in Neuroplastic & Reconstructive Surgery:
An International Symposium on Cranioplasty and Implantable Neurotechnology

November 3 - 4, 2018

General Session: November 3
Chevy Chase Auditorium
Johns Hopkins Hospital
Baltimore, MD

Hands-on Lab: November 4
VISTA Lab
1030 North Charles Street
Baltimore, MD

This activity has been approved for AMA PRA Category 1 Credits™.
DESCRIPTION

Modern-day cranioplasty, along with the burgeoning field of Neuroplastic and Reconstructive Surgery, is undergoing a significant paradigm shift related to various techniques, surgical advancements, implantable neurotechnology, and improved biomaterials. These changes have stimulated us to assemble premier thought leaders in various specialties including neurosurgery, neuroplastic surgery, craniofacial surgery, and plastic surgery to meet for the fourth annual symposium dedicated to the subjects of “cranioplasty,” “implantable neurotechnology,” and “neuroplastic surgery”— to be hosted this year in Baltimore, Maryland. The faculty will gather to present evidence-based data on surgical approaches and state-of-the-art materials, engage and network within a broad array of colleagues and experts, and share high-yield experiences to help attendees improve their patient outcomes. Interactive panel discussions following each lecture will offer the opportunity to debate the evidence, exchange ideas, and gain invaluable insight to assist with the most challenging cases. This year’s symposium will engage an international faculty and audience consisting of neurosurgery, neuroplastic surgery, craniofacial surgery, plastic/reconstructive surgery, oral/maxillofacial surgery, and otolaryngology/head and neck surgery to explore and elucidate the new insights and advances relative to skull reconstruction, cranial implants, and groundbreaking neurotechnologies.

WHO SHOULD ATTEND


OBJECTIVES

After attending this activity, the participant will demonstrate the ability to:

• Create a cranioplasty reconstruction management plan with or without implants, from peri- to postprocedural care.
• Discuss recent advances in cranioplasty and neuro-cranial reconstruction, and how you may incorporate them into your practice.
• Translate cranioplasty and implantable neurotechnology research findings to improved outcomes based on recent evidence based literature.
• Employ cooperative learning to analyze practice barriers and apply appropriate solutions.

ACCREDITATION STATEMENT

The Johns Hopkins University School of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

CREDIT DESIGNATION STATEMENT

The Johns Hopkins University School of Medicine designates this Live activity for a maximum of 12.50 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

OTHER CREDIT(S)

American Nurses Credentialing Center (ANCC) accepts AMA PRA Category 1 Credit™ from organizations accredited by the ACCME.

American Academy of Nurse Practitioners National Certification Program accepts AMA PRA Category 1 Credit™ from organizations accredited by the ACCME.
National Commission on Certification of Physician Assistants (NCCPA). PAs may claim a maximum of 12.50 Category 1 credits for completing this activity. NCCPA accepts AMA PRA Category 1 Credit™ from organizations accredited by ACCME or a recognized state medical society.

POLICY ON SPEAKER AND PROVIDER DISCLOSURE
It is the policy of the Johns Hopkins University School of Medicine that the speaker and provider globally disclose conflicts of interest. The Johns Hopkins University School of Medicine OCME has established policies that will identify and resolve conflicts of interest prior to this educational activity. Detailed disclosure will be made prior to presentation of the education.

GENERAL INFORMATION

REGISTRATION
Saturday, November 3, 2018
6:00 – 7:00 a.m.

LOCATION
Chevy Chase Bank Conference Center
The Sheikh Zayed Tower
The Johns Hopkins Hospital
1800 Orleans Street, Main Level
Baltimore, Maryland 21287

FEES
REGISTRATION CUT-OFF DATE: October 28, 2018
Register Online at:

Methods of Payment: We require full payment prior to the start of the activity. The registration fee includes instructional materials, continental breakfasts, refreshment breaks and lunch.

Physicians
Saturday, November 3rd only ........................................... $495
Sunday, November 4th only .......................................... $750
Saturday and Sunday .................................................. $1,200

Residents*/Fellows*/Allied Health Professionals
Saturday, November 3rd only ........................................... $95
Sunday, November 4th only .......................................... $100
Saturday and Sunday .................................................. $195

*with verification of status

You will receive a confirmation by e-mail. If you have not received it by October 28, 2018, call (410) 502-9636 to confirm that you are registered.
A transcript of attendance will be available upon attestation of your credit hours and submission of the post activity online evaluation.
The Johns Hopkins University reserves the right to cancel or postpone any activity due to unforeseen circumstances. In this event, the University will refund the registration fee but is not responsible for travel expenses. Additionally, we reserve the right to change the venue to a comparable venue. Under such circumstances registrants will be notified as soon as possible.
LATE FEE AND REFUND POLICY
A $50 late fee applies to registrations received after 5:00 p.m. ET on October 28, 2018. A handling fee of $50 will be deducted for cancellation. An additional fee may apply for cancellation of other events, including workshops and social activities. Refund requests must be received by fax or mail by October 28, 2018. No refunds will be made thereafter. Transfer of registration to another Johns Hopkins activity in lieu of cancellation is not possible.

SYLLABUS
The syllabus will be accessible online and via your mobile device in the CloudCME App prior to the activity.

HOW TO OBTAIN CREDIT
Post activity, an online evaluation will be available to attendees to evaluate the activity and individual presentations and to identify future educational needs. Upon completion of the evaluation, the learner must attest to the number of hours in attendance. Credits earned will be added to the learner’s transcript and immediately available for print. The last day to access the evaluation and attest to your credits is December 18, 2018.

An outcome survey will be sent to all physician attendees within two months post activity to assist us in determining what impact this activity had on the learner’s practice.

EMERGENCY CALLS
On November 3, 2018 direct emergency calls to the Hopkins registration desk, (443) 287-5426. On November 4, 2018 direct emergency calls to the Hopkins registration desk, (410) 637-3704. Messages will be posted for participants.

AMERICANS WITH DISABILITIES ACT
The Johns Hopkins University School of Medicine fully complies with the legal requirements of the ADA and the rules and regulations thereof. Please notify us if you have any special needs.

ACKNOWLEDGEMENT
Applications for commercial support from health care related industries are pending. A complete list of contributors will be provided in the syllabus. Please note that commercial support received is solely for the educational component of the activity and will not be used to provide food and beverage.

Please note: The Physician Payments Sunshine Act was enacted by Congress to increase public awareness of financial relationships between drug and medical device manufacturers and physicians. In compliance with the requirements of this Act, the commercial supporter/s of this activity may require the Johns Hopkins University School of Medicine to report certain professional information (such as name, address, National Provider Identifier (NPI), and State License number) of physician attendees who receive complimentary food and beverage in conjunction with a CME activity. The commercial supporter is required to submit the collected data to the Centers for Medicare and Medicaid Services which will then publish the data on its website.
SATURDAY, NOVEMBER 3, 2018

6:00 - 7:00 Registration and Continental Breakfast
7:00 - 7:10 Welcome and Conference Goals
   Chad Gordon, DO, FACS
7:10 - 7:20 Chairman’s Welcome
   Henry Brem, MD
7:20 - 7:30 Opening Remarks
   Redonda Miller, MD, MBA
7:30 - 7:50 Patient Experience with Neuroplastic Surgery and Cranial Reconstruction

Session 1: Implantable Neurotechnology
Moderators: William Curry, MD and Michael Yaremchuk, MD
8:00 - 8:15 Expansion Microscopy and Optogenetics in Normal and Diseased Brain
   Pablo Valdes Quevado, MD, PhD
8:15 - 8:30 Intraoperative OCT Imaging for Brain Tumors
   Kaisorn Chaichana, MD
8:30 - 8:45 Implanting Seeds for Local Radiation Therapy
   Lawrence Kleinberg, MD
8:45 - 9:00 Convection-Enhanced Delivery for Brain Tumors
   Jon Weingart, MD
9:00 - 9:15 Improving Shunts and Devices for Hydrocephalus
   Mark Luciano, MD, PhD
9:15 - 9:30 Foreign Body Reaction and Biological Interface Phenomena
   Aldo Ferrari, MD
9:30 - 9:45 Patient Selection for Implantable Neuromodulation
   Gregory Bergey, MD
9:45 - 10:00 Neurostimulation for Epilepsy
   William Anderson, MD
10:00 - 10:30 Fourth Annual Keynote Lectureship: Restoration and Control of Motor Function and Sensation Using High Electrode Count Utah Electrode Arrays
   Richard Normann, PhD
10:30 - 10:45 Challenges of Achieving Long-Term Neural Interfaces
   John Donoghue, PhD
10:45 - 11:00 Neuromodulation for Movement Disorders
   Jason Gerrard, MD, PhD
11:00 - 11:15 Local vs Systemic Chemotherapy for Malignant Brain Tumors
   John Laterra, MD, PhD
11:15 - 11:30 Cell Delivery Catheters for Stem Cell-Based Therapeutics
   Jeff Schweitzer, MD, PhD
11:30 - 11:45 Low-Profile Intracranial Devices with Power
   Chad Gordon, DO, FACS
11:45 - 12:15 Lunch

Session 2: Cranioplasty and Craniofacial Implants
Moderators: Peter Taub, MD and Judy Huang, MD
12:15 - 12:30 Cranial Implants for Pediatric Patients
   Jesse Goldstein, MD
12:30 - 12:45 Brain Tumors And Neuro-Reconstruction
   William Curry, MD
12:45 - 1:00 Skull Neoplasm Resection and Single-Stage Reconstruction with Implants
   Michael Lim, MD
1:00 - 1:15 Neuro-Cranial Injuries from the Battlefield
   Randy Bell, MD
1:15 - 1:30 Reconstructing the Wounded Warrior
   Anand Kumar, MD
1:30 - 1:45 Refreshment Break
Session 3: Neurocranial Reconstruction and Post-Traumatic Cranioplasty  
**Moderators:** Rafael Tamargo, MD and Mutaz Habal, MD

1:45 - 2:00  Managing Civilian Neurotrauma  
Bizhan Aarabi, MD

2:00 - 2:15  Osteoplastic Craniotomy for Improved Outcomes  
Fotios Vrionis, MD

2:15 - 2:30  Robotic-Assisted Technology for Cranial Implant Modification  
Mehran Armand, PhD

2:30 - 3:00  Intra-Op Modification of Cranial Implants  
Orin Bloch, MD

3:00 - 3:15  The Apollo System and Futuristic Applications  
Erol Veznedaroglu, MD

3:15 - 3:30  An Analysis of Cranioplasty Complications and Costs  
Gordon Li, MD

3:30 - 3:45  Preferred Technique and Materials for Cranioplasty  
Amir Wolff, DMD

3:45 - 4:00  Futuristic Applications of 3D Printing for Neuro-Cranial Reconstruction  
Gerald Grant, DMD, MS

4:00 - 4:15  Novel Applications of Rectus Fascia for Repairing Dura Defects and Thin Scalps  
Gabriel Santiago, MD

4:15 - 4:30  Non-Invasive Temporal Hollowing Correction with Fillers  
Mary Sheu, MD

4:30 - 4:35  Closing Remarks  
Chad Gordon, DO, FACS

SUNDAY, NOVEMBER 4, 2018

VISTA Lab

7:00 - 7:45  Registration and Continental Breakfast

7:45 - 7:55  Welcome and Faculty Overview  
Chad Gordon, DO, FACS

8:00 - 9:45  Session I: Neurosurgical Approaches to the Craniofacial Skeleton

1. Burr hole for Ventriculostomy Placement
2. Pterional Craniotomy for Trauma
3. Parasagittal Craniotomy
4. Bifrontal Craniotomy for Frontal Sinus Trauma
5. Orbito-zygomatic Osteotomy
6. Occipital Craniotomy
7. Posterior Fossa Craniotomy

9:45 - 10:00  Refreshment Break

10:00 - 11:45  Session II: Neurocranial Reconstruction and Cranioplasty Technique

1. Bifrontal Cranioplasty for Frontal Bone/Frontal Sinus Trauma
2. Pterional Cranioplasty Reconstruction with Customized Cranial Implant
3. Hemifrontoecraniectomy Cranioplasty Reconstruction with Customized Cranial Implant
4. Chiari Reconstruction with Alloplastic Implant
5. Temporal Hollowing Correction with Methyl Methacrylate
6. Complex Scalp Reconstruction for Large Defects

11:45 - 12:00  Closing Remarks  
Adjourn

You will receive an email notification to complete the evaluation form and to attest to the number of hours in attendance.

The registration desk will remain open during conference hours.
GUEST

Bizhan Aarabi, MD
Professor of Neurosurgery
Director, Neurotrauma
University of Maryland Medical Center
Baltimore, Maryland

Randy Bell, MD
Neurosurgeon
Walter Reed National Military Medical Center
Bethesda, Maryland

Orin Bloch, MD
Khabat Professor of Neurological Surgery
Feinberg School of Medicine
Northwestern University
Chicago, Illinois

Kaisorn Chaichana, MD
Associate Professor of Neurosurgery, Oncology, and Otolaryngology–Head & Neck Surgery
Mayo Clinic
Jacksonville, Florida

John Donoghue, PhD
Director
Wyss Center for Bio and Neuroengineering
Geneva, Switzerland

Aldo Ferrari, MD
Group Leader
Department of Mechanical and Process Engineering
Institute of Energy Technology
ETH Zurich
Zurich, Switzerland

Jason Gerrard, MD, PhD
Assistant Professor of Neurosurgery
Chief, Functional Neurosurgery
Yale School of Medicine
New Haven, Connecticut

Jesse Goldstein, MD
Assistant Professor of Plastic Surgery
University of Pittsburgh
Pittsburgh, Pennsylvania

Gerald Grant, DMD, MS
Professor of Dentistry
Acting Chair, Oral Health and Rehabilitation
University of Louisville
School of Dentistry
Louisville, Kentucky

Mutaz Habal, MD
Research Professor
University of South Florida
Adjunct Professor of Material Science
University of Florida
Director, Tampa Bay Craniofacial Center
Tampa, Florida

Anand Kumar, MD
Clinical Professor of Plastic Surgery
Case Western Reserve University
School of Medicine
Division Chief, Plastic and Reconstructive Surgery
UH Cleveland Medical Center
Chief, Pediatric Plastic Surgery
UH Rainbow Babies and Children’s Hospital
Cleveland, Ohio

Gordon Li, MD
Associate Professor of Neurosurgery
The Stanford University Medical Center
Palo Alto, California

Joe Losee, MD
Professor of Surgery and Pediatrics
Chief, Pediatric Plastic Surgery
Director, Pittsburgh Cleft-Craniofacial Center
Program Director, Plastic Surgery Residency
Ross H. Musgrave Endowed Chair in Pediatric Plastic Surgery
UPMC Children’s Hospital of Pittsburgh
Pittsburgh, Pennsylvania

Richard Normann, PhD
Professor of Ophthalmology/Visual Sciences
University of Utah School of Medicine
Salt Lake City, Utah

Gabriel Santiago, MD
Attending Neuroplastic Surgeon, Department of Otolaryngology
United States Navy
Portsmouth, Virginia

Jeff Schweitzer, MD, PhD
Neurosurgeon
Massachusetts General Hospital
Boston, Massachusetts

Peter Taub, MD
Professor of Surgery, Pediatrics and Neurosurgery
Mount Sinai School of Medicine
New York, New York

Pablo Valdes Quevado, MD, PhD
Clinical Fellow in Neurosurgery
Brigham and Women’s Hospital
Boston, Massachusetts

Erol Veznedaroglu, MD
Robert A. Groff Chair in Neurosurgery
Director, Drexel Neurosciences Institute
Drexel Neurosciences Institute
Philadelphia, Pennsylvania

Fotios Vrionis, MD
Director, Marcus Neuroscience Institute
Neurosurgeon
Boca Raton Regional Hospital
Boca Raton, Florida

Amir Wolff, DMD
Maxillofacial Surgeon, Department of Oral and Maxillofacial Surgery
Technion Institute of Technology
Rambam Health Care Campus
Haifa, Israel
**REGISTRATION FORM**

**Fourth Annual Selected Topics in Neuroplastic and Reconstructive Surgery: An International Symposium on Cranioplasty and Implantable Neurotechnology**

**November 3-4, 2018**

**To Register:**
- FAX: (866) 510-7088  
  Phone: (410) 502-9636

Or mail this form to the Johns Hopkins University, Office of Continuing Medical Education, 720 Rutland Avenue, Baltimore, Maryland 21205. Include e-check or credit card information below.

**FULL PAYMENT IS REQUIRED PRIOR TO THE START OF ACTIVITY.**

- I am a Johns Hopkins speaker for this activity.

*Please type or print clearly*

<table>
<thead>
<tr>
<th>last name</th>
<th>first name</th>
<th>m.i.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>highest degree</th>
<th>primary specialty</th>
<th>Hopkins faculty/staff only: JHED ID</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For physicians only: NPI 10 Digit #</th>
<th>state license #:</th>
<th>state of license</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>mailing address</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>city</th>
<th>state</th>
<th>JH + 4 code</th>
<th>country</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>daytime telephone</th>
<th>fax number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>email (required field)</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ / / / / / / / / / / /</td>
</tr>
</tbody>
</table>

- Check here if you wish to receive e-mail notices about upcoming CME activities.

What do you hope to learn by attending this activity?

________________________________________________________________________

Please notify us if you have any special needs.

________________________________________________________________________

**Registration Fees**

**Physicians**

- Saturday, November 3rd only: $495
- Sunday, November 4th only: $750
- Saturday and Sunday: $1,200

**Residents*/Fellows*/Allied Health Professionals**

- Saturday, November 3rd only: $95
- Sunday, November 4th only: $100
- Saturday and Sunday: $195

*with verification of status

**Total amount enclosed $**

The registration fee includes instructional materials and food and beverage. For registrations received after 5:00 p.m. ET on October 28, 2018, include a $50 late fee. On-site registrations are payable only by credit card.

**Payment Type**

- JHU Faculty/Staff Only:
  - If you are using your Tuition Remission Benefit or an ION budget, please upload your fully completed and approved form in the payment section of the activity link above.
  - ION Form: [http://hopkinscme.edu/migration/IonRequest.pdf](http://hopkinscme.edu/migration/IonRequest.pdf)

- e-Check: Routing # __________________ Account # __________________

- Credit Card: □ VISA □ MASTERCARD □ DISCOVER □ AMEX

Card #: __________________ Exp. Date ________________

Billing Zip Code __________________ Security Code __________________

Name on Card __________________ Signature and Date ________________