North American Skull Base Society

28th Annual Meeting

“Dynamic Mentoring of the Skull Base Surgeon: Training Our Future”

February 16-18, 2018
Loews Coronado Bay Hotel, Coronado, California

Pre-Meeting Course: February 14-15, 2018
UCSD Center for the Future of Surgery

PRESIDENT: Ian Witterick, MD
PROGRAM CHAIRS: Amir Dehdashti, MD & Zoukaa Sargi, MD
PRE-MEETING COURSE CHAIRS: Ricardo Carrau, MD & James Evans, MD
SCIENTIFIC PROGRAM COMMITTEE: Siviero Agazzi, MD, Matt Carlson, MD, Ian Dunn, MD, Ivan El-Sayed, MD, Nagy Elsayyad, MD, Bharat Guthikonda, MD, Perry Mansfield, MD, Rahul Mehta, MD, Kris Moe, MD, George Wanna, MD, Eugene Yu, MD, & Gelareh Zadeh, MD

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You specialize in your patients.

We specialize in you.

Learn more at Stryker booth #301
Dear Colleagues and Friends,

Welcome to the 28th Annual Meeting of the North American Skull Base Society!

The Program Committee has put together a most impressive array of pre-courses, keynote lectures, panels, hot topics, debates, video sessions, and proffered paper sessions. I want to thank each and every member of our Program Committee for their enormous contributions to the success of this meeting and especially to our two Program Co-Chairs, Dr. Zoukaa Sargi and Dr. Amir Dehdashti who have worked tirelessly to make this a great educational meeting.

The BSC Management team has done a spectacular job in organizing this meeting and keeping us all on target. I am also very grateful to Dr. Perry Mansfield who was so helpful with local arrangements.

The main theme of the meeting: Dynamic Mentoring of the Skull Base Surgeon: Training our Future is about the current and next generations of physicians and allied health professionals who will manage skull base disease. All of us have had mentors who have helped shape our careers. My hope is that we all learn more about what makes a great mentor/mentee relationship and how all of us can “pay it forward”.

The pre-courses include a Hands-On Course led by Drs. James Evans and Ricardo Carrau, a Meningioma Education Day led by Drs. Gelareh Zadeh and Ian Dunn and a Skull Base Primer Course led by Drs. Eric Monteiro and Scott Wait. The meningioma theme will continue on the first day of the main meeting. On the last day, we will have a Pituitary Forum in conjunction with the International Society of Pituitary Surgeons.

A new feature this year is The Rhoton Room covering specific anatomical areas starting with 3D anatomy followed by pertinent diagnostic imaging along with and then two teams of surgeons performing simultaneous dissections on cadaveric specimens with commentary. Day 1 (February 16th) will feature open procedures, Day 2 (February 17th) will feature endoscopic procedures and Day 3 (February 18th) will feature temporal bone and neck anatomy plus radiology (no dissections).

There will be an opportunity to test your skills in stopping carotid bleeding with Carotid Bleeding Simulators. We will have a Three Minute Thesis competition on Saturday February 17th. Ten of the top scoring abstracts will participate in a contest where the presenters will have three minutes and one slide only to describe their work (1st, 2nd and 3rd place prizes will be awarded). There is also a resident and fellow skull base trivia “Jeopardy” contest on February 17th in the afternoon.

I have invited three of my mentors as Guests of Honor; these are Dr. Patrick Gullane (University of Toronto), Dr. Fred Gentili (University of Toronto) and Dr. Peter Neligan (University of Washington). Dr. Gentili was an honored guest at last year’s meeting but he has played such an important role in my career, I had to invite him back. These three surgeons, representing head and neck oncology, neurosurgery and plastic surgery respectively, have all been instrumental in shaping the lives of so many “mentees”, including myself, and have had a profound influence on skull base surgery in North America.

In addition, Dr. Robert Miller who just stepped down as the Executive Director of the American Board of Otolaryngology will tell us about networking and career development. Dr. Dan Fliss from Israel will give us an overview of skull base surgery in the 21st century and Dr. Harry van Loveren will give us his insights on knowing when and how to “hand over the scalpel” to residents and fellows. Mr. David DeLong will give us a keynote lecture on February 17th on Making Experience Pay Off: Maximizing the Value of mentoring.

The Research Committee led by Drs. Anand Devaiah and Shaan Raza have vetted over 40 research applications for new funding awards approved by the NASBS Board. The winners will be announced at the annual meeting as well as winners of awards from submitted manuscripts in three categories (basic science, clinical science and international). We will also be announcing an exciting endowment and the creation of the NASBS Foundation to support research and education going forward.

I want to thank the fellowship programs and individuals who generously supported the 2018 NASBS International Travel Scholarship. With their support, we were able to fund four awards to allow Dr. Anthony Thomas (South Africa), Dr. Idoya Zazpe (Spain), Dr. Hermantkumar Nemade (India) and Dr. Olli-Pekka Kamarainen (Finland) to attend this meeting. Please join me in welcoming these four colleagues.

I hope you enjoy the resort and the surrounding beauty of the Coronado peninsula. You will have down time and fun time to catch up with friends and colleagues. We will have a Welcome Reception, poster viewing and poster tours on Friday night. On Saturday night, we are planning a New Members Reception followed by a “Beach Blowout” on Silver Strand Beach, a short walk from the Loews Coronado.

The interest in our society is strong and growing. The Membership Committee under the leadership of Dr. Madison Michael has done another outstanding job in showcasing our society with more than 120 new applications to join the NASBS this year. We have had record attendance (exceeding 700 attendees), sponsorship and abstract submissions for this meeting. The future of the NASBS looks GREAT!

Thank you for allowing me to serve as your President; it is an honor and privilege. I sincerely hope you find this meeting and all of its components exceed your expectations.

Relax, enjoy, connect and learn!

Ian J. Witterick MD
NASBS President 2017-2018

IAN J. WITTERICK MD
NASBS 28th ANNUAL MEETING: FINAL PROGRAM 2018
General/CME Information

ANNUAL MEETING OBJECTIVES
Upon completion of this course, participants will be able to:

- Understand and explain most recent recommendations for management of skull base pathology.
- Describe recent advances in instrumentation and technology in skull base surgery.
- Gain knowledge in challenging skull base pathology from experienced leaders in the field.
- Collaborate in multidisciplinary working groups to identify state of the art management for select skull base pathology.
- Gain knowledge on optimal technical surgical management of complex skull base pathology through video analysis and expert critique of intraoperative video.
- Establish consensus statement on management of complex skull base pathology through review of existing medical literature.

WHO SHOULD ATTEND
The NASBS meeting is open to NASBS members and non-members.

TARGET AUDIENCE
- Otolaryngologists, head and neck surgeons, neurosurgeons, reconstructive surgeons, radiation oncologists, radiologists, medical oncologists, physical rehabilitation physicians, ophthalmologists, neurologists, maxillofacial surgeons, maxillofacial prosthodontists and endocrinologists.
- Targeted allied health professionals include physical therapists, oncology nurses, oral health specialists, occupational therapists, speech and language pathologists, optometrists and psychologists.

DISCLOSURE INFORMATION
In compliance with the ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. All reported conflicts are managed by a designated official to ensure a bias-free presentation. Please see the insert to this program for the complete disclosure list.
**NASBS 28th Annual Meeting: Final Program 2018**

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**General Information**

**MEMBERSHIP BENEFITS**

- **Scientific Journal:** Members will receive the official journal of the society, *The Journal of Neurological Surgery Part B*, a bimonthly publication that contains peer reviewed original articles, review articles, and position papers. It also presents news and information on an international scope to keep members aware of recent and upcoming events, activities, and evolving developments in skull base surgery.

- **Continuing Medical Education:** Members will receive listings of continuing medical education opportunities in skull base surgery, as well as scientific courses sponsored by the NASBS and will receive reduced registration fees for national scientific meetings.

- **Membership Directory:** Online access to all members contact information.

- **NASBS Website Access:** Members will have access to Member-Only discussion areas on the Society’s website.

Please visit [www.nasbs.org/membership](http://www.nasbs.org/membership) for more information or email [membership@nasbs.org](mailto:membership@nasbs.org).

**WHY JOIN NASBS?**

Membership is based on an interest in skull base surgery and related sciences. Individuals with backgrounds in neurosurgery, otolaryngology-head and neck surgery, radiology, neuroradiology, otology, neurotology, plastic and reconstructive surgery, and others interested in skull base diseases are welcome to apply.

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**Meeting Leadership**

**NASBS Scientific Program Committee**

Ian Witterick, MD, *President*
Amir Dehdashti, MD, *Co-Chair*
Zoukaa Sargi, MD, *Co-Chair*
Ricardo Carrau, MD, *Pre-Meeting Chair*
James Evans, MD, *Pre-Meeting Chair*
Siviero Agazzi, MD
Matt Carlson, MD
Ian Dunn, MD
Ivan El-Sayed, MD
Nagy Elsayyad, MD
Bharat Guthikonda, MD
Perry Mansfield, MD
Rahul Mehta, MD
Kris Moe, MD
George Wanna, MD
Eugene Yu, MD
Gelareh Zadeh, MD

**NASBS Executive Committee**

**PRESIDENT:** Ian Witterick, MD
**PRESIDENT-ELECT:** James Evans, MD
**IMMEDIATE PAST PRESIDENT:** Jacques Morcos, MD
**VICE PRESIDENT:** Ricardo Carrau, MD
**SECRETARY:** John Golfinos, MD
**TREASURER:** Lee Zimmer, MD

**Directors at Large**

Siviero Agazzi, MD
Matthew Carlson, MD
Ivan El-Sayed, MD
Steven Frank, MD
Paul Gardner, MD
Madison Michael, MD
Kris Moe, MD
Thomas Roland, MD
George Wanna, MD
Gelareh Zadeh, MD
Adam Zanation, MD

**Board of Advisors**

Ehab Hanna, MD
Carl Heilman, MD
Dennis Kraus, MD
Michael Link, MD
Carl Snyderman, MD
Meeting Hours

**REGISTRATION HOURS**
Thursday, February 15, 2018
Friday, February 16, 2018
Saturday, February 17, 2018
Sunday, February 18, 2018

**SPEAKER READY ROOM HOURS**
Thursday, February 15, 2018
Friday, February 16, 2018
Saturday, February 17, 2018
Sunday, February 18, 2018

**EXHIBIT HALL/POSTER HOURS**
Friday, February 16, 2018
9:00 am - 4:30 pm and 6:15 pm – 7:45 pm Exhibit Hall Open
9:30 am - 10:15 am Refreshment Break
12:15 pm - 1:15 pm Lunch in Exhibit Hall
3:30 pm - 4:15 pm Refreshment Break
6:15 pm - 7:45 pm Welcome Reception in Exhibit Hall

Saturday, February 17, 2018
9:00 am - 4:30 pm Exhibit Hall Open
9:30 am - 10:15 am Refreshment Break
12:15 pm - 1:15 pm Lunch for Non-Members in Exhibit Hall
3:30 pm - 4:15 pm Refreshment Break

**DISMANTLE & REMOVAL OF EXHIBITS**
Saturday, February 17, 2018
4:30 pm - 7:30 pm

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**Past Presidents**

<table>
<thead>
<tr>
<th>Year</th>
<th>President</th>
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<tbody>
<tr>
<td>1990</td>
<td>Paul J. Donald, MD</td>
<td>2004</td>
<td>Jatin Shah, MD</td>
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<td>1991</td>
<td>Laligam N. Sekhar, MD</td>
<td>2005</td>
<td>Patrick J. Gullane, MD</td>
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<td>1992</td>
<td>Ivo P. Janecka, MD</td>
<td>2006</td>
<td>Anil Nanda, MD</td>
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<td>1993</td>
<td>Peter G. Smith, MD, PhD</td>
<td>2007</td>
<td>Guy J. Petruzzelli, MD</td>
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<td>1994</td>
<td>Albert L. Rhoton, Jr., MD</td>
<td>2008</td>
<td>Franco DeMonte, MD</td>
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<td>1995</td>
<td>Hugh Curtin, MD</td>
<td>2009</td>
<td>Daniel Nuss, MD</td>
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<td>Derald E. Brackmann, MD</td>
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<td>Peter Neligan, MD</td>
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<td>1997</td>
<td>Ossam Al Mefty, MD</td>
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<td>Dennis Kraus, MD</td>
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<td>1998</td>
<td>Steven A. Newman, MD</td>
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<td>Carl Heilman, MD</td>
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<td>1999</td>
<td>John P. Leonetti, MD</td>
<td>2013</td>
<td>Ehab Hanna, MD, FACS</td>
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<td>2000</td>
<td>Robert F. Spetzler, MD</td>
<td>2014</td>
<td>Michael Link, MD</td>
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<td>2001</td>
<td>Ian T. Jackson, MD</td>
<td>2015</td>
<td>Carl Snyderman, MD, MBA</td>
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<td>2002</td>
<td>Vinod K. Anand, MD</td>
<td>2016</td>
<td>Jacques Morcos, MD, FRCS, FAANS</td>
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<tr>
<td>2003</td>
<td>Jon H. Robertson, MD</td>
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Convention Hotel Floor Plan

LOEWS CORONADO BAY RESORT

Constellation Lobby

First Floor

Second Floor

Registration

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Acknowledgement of Educational Grants

The North American Skull Base Society would like to recognize and thank the following companies for their support:

**Diamond Level Marketing Support**
Stryker

**Platinum Level Educational Grant**
Medtronic

**Gold Level Educational Grant**
Carl Zeiss Meditec, Inc.

**Silver Level Educational Grant**
DePuy Synthes

**Bronze Level Educational Grant**
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Olympus America, Inc.
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Integra
KARL STORZ Endoscopy, Inc.
KLS Martin
Medtronic
Mizuho America, Inc.
NICO Corporation
NSK America Corp.
Olympus America, Inc.
SPIWay, LLC
Stryker
Synaptive Medical, Inc.
TrueVision Systems

Keynote Lecturer

David DeLong

MIT AgeLab Research Fellow & Expert in Workforce Development, Corporate Culture & Knowledge Retention

Dr. David DeLong helps leaders implement practical solutions to address critical skill shortages created by major changes in workforce demographics, shifts in generational values and new technologies.

President of Smart Workforce Strategies, David is also a research fellow at the MIT AgeLab and has been an adjunct professor at Babson College where he teaches “Leading & Managing Organizational Change.”

He is co-author of *The Executive Guide to High-Impact Talent Management* (McGraw-Hill), and author of the widely-praised book *Lost Knowledge: Confronting the Threat of an Aging Workforce* (Oxford University Press). His most recent book is *Graduate to a Great Job: Make Your College Degree Pay Off in Today’s Market*.

David has spoken for and consulted with organizations such as MetLife, American Council of Life Insurers, the Federal Reserve Bank, Farm Credit System, Microsoft, MasterCard, Lockheed Martin, U.S. Nuclear Regulatory Commission, Ernst & Young and Accenture.

David’s work has been widely cited in the *New York Times*, *Fortune Magazine*, the *Wall Street Journal*, the *Financial Times*, *Harvard Business Review Blog*, *CIO Magazine*, *US News & World Report* and *The Boston Globe*. He has also been interviewed on NPR’s “Morning Edition” and “Talk of the Nation”.

David Delong
Fred Gentili, MD, MSc, FRCSC, FACS

Dr. Fred Gentili completed his medical training at the University of Toronto. After a surgical internship, he completed a Masters degree in the Institute of Medical Sciences at University of Toronto. Dr. Gentili entered Neurosurgical Training (Gallie Program) at the University of Toronto and completed his training and became a Fellow of the Royal College of Physicians and Surgeons of Canada (FRCSC) in 1980. He was awarded a McLaughlin Fellowship to pursue advanced training in skull base and micro-neurosurgery, completing clinical Fellowships at the University of Zurich with Professor G. Yasargil and at the National Hospital Queen Square in London England with Professor L. Symon in 1981. Dr. Gentili was certified by the American Board of Neurological Surgery in 1986 and is a Fellow of the American College of Surgeons (FACS).

Dr. Gentili joined the Neurosurgical staff at the Toronto General Hospital in 1982 and is currently Professor in the Division of Neurosurgery at the Toronto Western Hospital, University Health Network and University of Toronto. Dr. Gentili is a founding member of the North American Skull Base Society and a member of the Skull Base Surgery Committee of the World Federation of Neurosurgical Societies (WFNS) as well as a member of the WFNS Neuro-Endoscopy Committee. He helped establish the first interdisciplinary Skull Base Surgery Group in Canada at the University of Toronto and has promoted in collaboration with his ENT colleagues innovations in skull base surgery including endonasal endoscopic skull base techniques.

Dr. Gentili has been a dedicated teacher and educator having received numerous teaching awards. He is a member of local, national and international committees on education. He is currently the Director of Under-Graduate Surgical Education at University Health Network.

Dr. Gentili is the former Chair of the Examination Board on Neurosurgery of the Royal College of Physicians and Surgeons of Canada and is a former member of Evaluation Committee of the Royal College of Physicians and Surgeons of Canada. He is a member of the WFNS Education and Training Committee. He is a former member of the Advisory Board for Neurosurgery of the American College of Surgeons. He is a delegate to the WFNS representing the Canadian Neurosurgical Society. Dr. Gentili is a member of numerous Neurosurgical Societies and is on the Editorial Board of several International Journals.

He has received numerous honors/awards during his career including the Gold Medal from the University of Messina and the College of Physicians and Surgeons of Ontario Council Award recognizing clinical excellence in patient care. He has been the honored guest at many international meetings and has been visiting professor at multiple institutions in both North America and abroad. He was made an honorary member of the Italian Neurosurgical Society in 2005.

Dr. Gentili currently holds two Academic Chairs, the Alan and Susan Hudson Chair in Neuro-Oncology as well as the Crean Hotson Chair in Skull Base Surgery at the University of Toronto and University Health Network.

Dr. Gentili’s main interests are in Skull Base Surgery using both open and minimally invasive endoscopic techniques, Pituitary Surgery and Radiosurgery.
Honored Guest Lecturers

Patrick Gullane

Dr Patrick Gullane was born in Ireland and received his medical degree from NUI-Galway, Ireland in 1970. He is a Fellow of the Royal College of Surgeons of Canada and certified by the American Board of Otolaryngology-Head and Neck Surgery. In 1975 he was selected as the McLaughlin Fellow and then pursued advanced Fellowship training in Head and Neck Oncology in Pittsburgh, and New York.

In 1978 Dr. Gullane was appointed to the Department of Otolaryngology-Head and Neck Surgery at the University of Western Ontario, Canada. He was subsequently recruited to the Department of Otolaryngology-Head and Neck Surgery at the University of Toronto in 1983. He currently holds the Wharton Chair in Head and Neck Surgery at the University Health Network and University of Toronto. In 1989 he was appointed as Otolaryngologist-in-Chief within the University Health Network and in 2002 appointed as Professor and Chair of the Department of Otolaryngology-Head and Neck Surgery, University of Toronto. In 2012 he concluded his twenty four year period as Otolaryngologist-in-Chief at the University Health Network and his second and final term as Chair University of Toronto.

Dr Gullane is a member of numerous Surgical Societies, nationally/internationally and has been invited as a Visiting Professor to over 85 countries lecturing on all aspects of Head and Neck Oncology. He has delivered over 835 invited and Keynote presentations nationally/internationally including the Eugene Myers International lecture in September 2006, received the 2007 Medtronic Alumni Award from the National University of Ireland(Galway) for contributions to Health Care and Medical Science, delivered the Sir Peter Freyer Memorial lecture to the Irish Surgical Forum NUI-Galway in 2009, the John J. Conley lecture to the American Head and Neck Society in 2012, the 87th Abraham Colles lecture at the Royal College of Surgeons in Ireland in February 2012 and the Hayes Martin lecture at the 5th World Congress of IFHNOS and annual meeting of the Head and Neck Society in New York in July 2014. He was one of the six International Faculty leaders who conducted the IFHNOS Head and Neck World Tour Program in 2008. Dr Gullane has published 335 papers in peer-reviewed journals and 92 chapters in textbooks. In addition he has published 10 books on various aspects of Head and Neck Surgery. His textbook, “Head & Neck Surgery and Oncology”, was awarded the George Davey Howells Prize from the University of London, cited as the best published book in Otolaryngology-Head and Neck Surgery in the preceding five years. Currently, Dr Gullane is a member of the Editorial Board of 10 Journals. He has served as President of the American Head & Neck Society, The North American Skull Base Society, President of the Canadian Society of Otolaryngology-Head and Neck Surgery and Vice President of the Triological Society. In recognition of his distinguished achievements, Professor Gullane was awarded an Honorary Fellowship of the Royal Australasian College of Surgeons in 2006, Honorary Fellowship of the Royal College of Surgeons of England in 2010 and an Honorary Fellowship in the Royal College of Surgeons of Ireland in 2012. He was elected to Fellowship in the Canadian Academy of Health Sciences in 2011 and in 2010 was appointed as a Member to the Order of Canada by the Governor General of Canada, Cited for his inspiration of young surgeons and his contributions to the field of Head and Neck Surgery. In 2014, in recognition of his outstanding contributions an endowed Chair was named in his honour at the University Health Network/University of Toronto. In February 2015, Dr Gullane was appointed as a Member to the Order of Ontario by the Lieutenant Governor of Ontario for his achievements in the field of Head and Neck Surgery. Finally, he has facilitated the establishment of four University-Hospital Chairs: Head & Neck Surgery, Reconstruction, Radiation Oncology, and Basic Science, from private funding donations in excess of $15.5 M., with continual funding up to the present time.
Honored Guest Lecturers

Peter Neligan

Dr. Neligan is a Professor of Surgery and Director of the Center for Reconstructive Surgery, University of Washington Medical Center in Seattle. He specializes in microvascular surgery. A past-President of NASBS, he has published many papers on head and neck reconstruction and more particularly on cranial base reconstruction. He has also edited a textbook on Microvascular Reconstruction of the Head and Neck.

Brainlab Satellite Symposium

Friday, February 16, 2018 • 7:30pm – 9:30pm
LOCATION: Commodore A

**NOVALIS CIRCLE SYMPOSIUM**
Innovations in Management of Vestibular Schwannomas

- **The Use of HUD for Posterior CPA Tumor Resections**
  Joshua Bederson, MD, Mount Sinai Health System

- **Improved Intraoperative Visualization Enhances Resection of Skull Base Tumors**
  Orin Bloch, MD, Northwestern Memorial Hospital

- **The Role of Surgical Planning for Vestibular Schwannoma Surgery**
  Isaac Yang, MD, University of California, Los Angeles (UCLA)

Hors d'oeuvres to be served. Open bar.

*This event is not part of the official program of the North American Skull Base Society Annual Meeting.*
Invited Guest Speakers

Dan Fliss

Professor Dan M. Fliss M.D. is the Chairman of the Department of Otolaryngology Head and Neck and Maxillofacial Surgery and the Interdisciplinary Center for Head and Neck Surgical Oncology at Tel-Aviv Soursky Medical Center, affiliated to the Sackler Faculty of Medicine Tel-Aviv University. He is also the Head of the Department of Otolaryngology Head and Neck Surgery at the Sackler Faculty of Medicine, Tel-Aviv University, and on the Scientific Staff at the Department of Otolaryngology Head and Neck Surgery, Mount Sinai Hospital, Toronto, and the University of Toronto, Canada. He is currently the Scientific Secretary of the Asian Society of Head and Neck Oncology, Councilor of the International Academy of Oral Oncology (IAOO), a member of the Executive Committee of the International Federation of Head and Neck Oncology Societies (IFHNOS), and an Honorary Member of many International Head and Neck Societies. He is a frequent invited guest speaker at many international academic events among which the prestigious Eugene N. Myers International Lecture on Head and Neck Cancer. Prof. Fliss serves on the editorial boards of The Head and Neck Journal and is the editor of the Head and Neck Section of the Skull Base Journal, The Otolaryngology - Head and Neck Surgery Journal, Oral Oncology, The Journal of Operative Techniques in Otolaryngology Head and Neck Surgery, the European Journal of Otolaryngology Head and Neck Surgery, and others. Prof. Fliss is the author of 300 articles and book chapters and the author of four books on Head and Neck and Skull Base Surgery: Atlas of Head and Neck Surgery (J.P. Medical), Tumors of the Skull Base and Paranasal Sinuses (Springer), Pearls and Pitfalls in Head and Neck Surgery (Karger) and Atlas of Surgical approaches to paranasal Sinuses and Skull base (Springer).

Robert Miller

A native of New Orleans, Dr. Miller attended Tulane University for his undergraduate and medical school education. Following completion of an otolaryngology - head and neck surgery residency at UCLA in 1978, he joined the faculty at Baylor College of Medicine. In 1987, he was appointed Professor and Chairman of Tulane's Department of Otolaryngology - Head and Neck Surgery. Dr. Miller received an MBA degree from Tulane's Freeman School of Business in 1996, and was a Robert Wood Johnson Health Policy Fellow from 1996 to 1997 during which time he worked in the office of Senator John Breaux focusing on health policy issues including diabetes, hospice care, colorectal cancer screening, and Medicare reform. Dr. Miller returned to Tulane as Vice-Chancellor for Clinical Affairs following his Washington sojourn. In 1999, he became the Dean of the University of Nevada School of Medicine, a role he served until September, 2001. Dr. Miller is currently the Executive Director of the American Board of Otolaryngology and a Visiting Professor of Otolaryngology-Head and Neck Surgery at Baylor College of Medicine.

Harry van Loveren

Harry van Loveren is a graduate of the University of Cincinnati College of Medicine, completed Neurosurgical training in the combined program of the University of Cincinnati and the Mayfield Neurological Institute, and fellowship training in Neurophysiology at the UniversitätsSpital, Zurich. He currently serves as the David W. Cahill Professor and Chairman of the Department of Neurological Surgery and Brain Repair at the University of South Florida Morsani College of Medicine, vice-Dean of Clinical Affairs USF Health, CEO of the Byrd Alzheimer’s Center and Research Institute, Director of the USF Health Neuroscience Institute, and the USF Health Delegate to the AMA.
INTERNATIONAL TRAVEL SCHOLARSHIP WINNERS 2018

The International Travel Scholarship was first introduced at the NASBS 2016 Annual Meeting. The fellowship promotes international participation and gives the opportunity for international academic skull base surgeons to study at an NASBS Fellowship. Awardees receive $2,000 in travel funds and free registration to the annual meeting. For more information, please visit: www.nasbs.org/international-travel-scholarship. Submissions for the 2019 International Travel Scholarship will open September 2018.

Olli-Pekka Kamarainen, MD
Kuopio University Hospital
Kuopio, Finland

Antony Thomas, MD
K/T Complex Hospital,
University of Witwatersrand
Johannesburg, South Africa

Hermanthkumar Nemade, MD
Basavatarkam Indo American Cancer Hospital
and Research Institute
Hyderabad, India

Idoya Zazpe, MD
Hospital of Navarra
Pamplona, Navarra, Spain

NASBS is grateful to the following supporters of our International Scholarship program:

University of Pittsburgh Medical Center, Department of Otolaryngology and Department of Neurosurgery

University of Toronto, Department of Otolaryngology

Pablo Recinos, MD, Cleveland Clinic

Theodore Schwartz, MD, Cornell University

Lee Zimmer, MD, University of Cincinnati

INSTITUTIONS WITH THE MOST PUBLICATIONS IN 2016

David Geffen School of Medicine at UCLA: 10
University of California, Los Angeles: 8
Mayo Clinic: 6
Ohio State University: 4
Massachusetts Eye and Ear Infirmary: 4
University of Washington, Seattle: 4
Rush University Medical Center: 4
New York Head & Neck Institute: 4
Harvard Medical School: 3
Boston Medical Center: 3
Loyola University of Chicago: 3

Vanderbilt University: 3
Rutgers New Jersey Medical School: 3
Rutgers New Jersey Medical School Neurological Institute of New Jersey: 3
Boston University School of Medicine: 3
University of Pittsburgh Medical Center: 3
Stanford University: 3
University of Pittsburgh: 3
Children's Hospital and Regional Medical Center: 3
University of Utah: 3

TOP 20 REVIEWERS IN 2016

Michael Chicoine – completed 12 reviews
Carl Snyderman – completed 11 reviews
Paul Gardner – completed 10 reviews
Mustafa Başkaya – completed 9 reviews
Carl Heilman – completed 9 reviews
James Evans – completed 8 reviews
Jacques Morcos – completed 8 reviews
Chandra Sen – completed 8 reviews
Samy Youssef – completed 8 reviews
Shirley Su – completed 7 reviews

Amir Dehdashti – completed 6 reviews
Siviero Agazzi – completed 5 reviews
Michael Link – completed 4 reviews
Kenji Ohata – completed 4 reviews
Vikram Prabhu – completed 4 reviews
Mark Varvares – completed 4 reviews
Khaled Aziz – completed 3 reviews
Roy Casiano – completed 3 reviews
Franco DeMonte – completed 3 reviews
Gordon Li – completed 3 reviews
Faculty Listing

Ralph Abi Hachem, MD
Duke University
Durham, NC

Francesco Acerbi, MD, PhD
Fondazione I.R.C.C.S. Istituto Neurologico Carlo Besta
Milan, Italy

Siviero Agazzi, MD, MBA, FACS
University of South Florida
Department of Neurosurgery Tampa, FL

Manish Aghi, MD, PhD
University of California, San Francisco
San Francisco, CA

Ossama Al-Mefty, MD
Brigham and Women’s Hospital, Harvard Medical School
Boston, MA

Chrisfouad Alabiad, MD
Bascom Palmer Eye Institute/University of Miami
Miami, FL

Ali Alaraj, MD
University of Illinois at Chicago
Chicago, IL

Abdullah Albader, MD, FRCSC
University of Miami
Miami, FL

Ken Aldape, MD
University of Toronto
Toronto, ON, Canada

Joao Paulo Almeida, MD
University of Toronto
Toronto, ON Canada

Peter Amenta, MD
Tulane Medical Center
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Thank you to our valued members who have helped the NASBS continue to grow!

Below are the members who have sought out new members for our Society. Their commitment to the NASBS is the key to our success. We look forward to welcoming our new members at the New Member Reception at Silver Strand Breach on Saturday, February 17 from 6:45 pm to 7:30 pm. Please help us reach even more Skull Base Programs in 2017-2018.

Nithin Adappa
Siviero Agazzi
Ovanes Akobyan
Tord Alden
Andres Almendral
Michelle Alonso-Basanta
Jeremiah Alt
Rony Aouad
Seilesh Babu
Mustafa Baskaya
Ricardo Carrau
Roy Casiano
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Roukoz Chamoun
Michael Chicoine
Aaron Cohen-Gadol
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William Couldwell
William Curry Jr
Arthur Day
Kenneth De Los Reyes
Timothy DeKlotz
Johnny Delashaw
Aaron Dumont
Ian Dunn
Ivan El-Sayed
Kadir Erkmen
James Evans
Christopher Farrell
Rui Fernandes
Juan Fernandez-Miranda
Rick Friedman
Kathleen Gallagher
Gary Gallia
Paul Gardner
Fred Gentili
Stacey Gray
Bharat Guthikonda
Ehab Hanna
Richard Harvey
Carl Heilman
John Jane
Walter Jean
Amin Kassam
Daniel Kelly
Tyler Kenning
Osama Khan
Howard Krauss
Devyani Lal
Donald Lanza
Michael LaRouere
Edward Laws
Derrick Lin
Michael Link
James Liu
Perry Mansfield
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Gustavo Pradilla
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Pablo Recinos
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Xiao Guang Tong
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Harry van Loveren
Prasad Vannemreddy
Eugenia Vining
Scott Wait
Marilene Wang
Eric Wang
Jason Wilson
Ricky Wong
Bradford Woodworth
Gelareh Zadeh
Adam Zanation
### Faculty Listing

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
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<tbody>
<tr>
<td>Christopher Chin, MD</td>
<td>Dalhousie University</td>
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<td></td>
<td>Saint John, NB, Canada</td>
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<tr>
<td>Garret Choby, MD</td>
<td>Mayo Clinic</td>
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<td></td>
<td>Rochester, MN</td>
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<tr>
<td>Ondrej Choutka, MD, FAANS,</td>
<td>Saint Alphonsus Neuroscience Institute</td>
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<tr>
<td>MBMBCh, MA Hons (Oxon)</td>
<td>Boise, ID</td>
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<td>Patrick Codd, MD</td>
<td>Duke University</td>
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<td>Marc Cohen, MD, MPH</td>
<td>Memorial Sloan Kettering Cancer Center</td>
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<td>Carleton Corrales, MD</td>
<td>Brigham and Women's Hospital</td>
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<td>Peter Costantino, MD</td>
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<td>William Couldwell, MD, PhD</td>
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<td>Daniel Cox, MD</td>
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<td>John Craig, MD</td>
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<td>Hugh Curtin, MD</td>
<td>Massachusetts Eye and Ear, Harvard Medical School</td>
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<td>Carlos David, MD</td>
<td>Lahey Clinic</td>
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<td>John de Almeida, MD, MSc,</td>
<td>University Health Network/ Princess Margaret Cancer Centre</td>
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<tr>
<td>FRCSC</td>
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<tr>
<td>Amir Dehdashti, MD</td>
<td>Northshore University Hospital-Lenox Hill Hospital</td>
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<td>Manhasset, NY</td>
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<tr>
<td>David DeLong</td>
<td>Smart Workforce Strategies</td>
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<td>Anand Devaliah, MD</td>
<td>Boston University/Boston Medical Center</td>
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<td>Rataphol Chris Dhepnorratat,</td>
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<tr>
<td>MBBS, FRACS</td>
<td>Nedlands, Perth, Australia</td>
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<td>Christine Dinh, MD</td>
<td>University of Miami Miller School of Medicine</td>
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<tr>
<td>Ben Dixon, MBBS(Hons), PhD,</td>
<td>Epworth Hospital Head and Neck Multidisciplinary Service</td>
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<td>FRACS</td>
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<td>Francesco Doglietto, MD, PhD</td>
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<td>Ian Dunn, MD</td>
<td>Brigham and Women’s Hospital/ Harvard Medical School</td>
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<td>Ron Eliashar, MD</td>
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<td>Jean Anderson Eloy, MD</td>
<td>Rutgers New Jersey Medical School</td>
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<td>Nagy Elsayyad, MD, FACP</td>
<td>University of Miami Sylvester Cancer Center</td>
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<td>Kadir Erkmen, MD</td>
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<td>Adrien Eshraghi, MD</td>
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<td>Bita Esmaeli, MD, FACS</td>
<td>MD Anderson Cancer Center</td>
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<td>James Evans, MD</td>
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<td>Randall Feingold, MD</td>
<td>Aesthetic Plastic Surgery, PC</td>
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<td>Juan Fernandez-Miranda, MD</td>
<td>University of Pittsburgh Medical Center</td>
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<td>Dan Fliss, MD</td>
<td>Tel-Aviv Medical Center</td>
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<td>Rick Friedman, MD, PhD</td>
<td>University of California, San Diego</td>
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<td>Gary Gallia, MD, PhD</td>
<td>Johns Hopkins Hospital</td>
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<td>Paul Gardner, MD</td>
<td>University of Pittsburgh School of Medicine</td>
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<tr>
<td>Fred Gentili, MD, MSc, FRCSC, FACS</td>
<td>University of Toronto</td>
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<td>Toronto, ON, Canada</td>
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</tbody>
</table>
# Faculty Listing

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<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>City</th>
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<tbody>
<tr>
<td>Anand Germanwala, MD</td>
<td>Loyola University School of Medicine Department of Neurosurgery</td>
<td>Maywood, IL</td>
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<tr>
<td>Maged Ghaly, MD</td>
<td>Northwell Health</td>
<td>New Hyde Park, NY</td>
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<tr>
<td>Soha Ghossaini, MD</td>
<td>ENT Associates In New York</td>
<td>Astoria, NY</td>
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<tr>
<td>Ralph Gilbert, MD</td>
<td>University of Toronto</td>
<td>Toronto, ON, Canada</td>
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<tr>
<td>Lawrence Ginsberg, MD</td>
<td>MD Anderson Cancer Center</td>
<td>Houston, TX</td>
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<tr>
<td>John Golfinos, MD</td>
<td>NYU School of Medicine</td>
<td>New York, NY</td>
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<tr>
<td>Vinai Gondi, MD</td>
<td>CDH Proton Center</td>
<td>Chicago, IL</td>
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<tr>
<td>Peter Gooderham, MD</td>
<td>University of British Columbia</td>
<td>Vancouver, BC</td>
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<tr>
<td>Jon Grant, MD</td>
<td>Intermountain Medical Group</td>
<td>Murray, UT</td>
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<tr>
<td>Stacey Gray, MD</td>
<td>Harvard Medical School</td>
<td>Boston, MA</td>
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<tr>
<td>Andre Grotenhuis, MD, PhD</td>
<td>Radboud University Nijmegen Medical Centre</td>
<td>Nijmegen, Netherlands</td>
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<tr>
<td>Patrick Gullane, MD, CM, OOnt, MB, FRCS, FACS, Hon FRACS, Hon FRCSI</td>
<td>University of Toronto</td>
<td>Toronto, ON, Canada</td>
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<tr>
<td>Richard Gurgel, MD</td>
<td>University of Utah</td>
<td>Salt Lake City, UT</td>
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<td>Jose Gurrola, MD</td>
<td>University of California</td>
<td>San Francisco, CA</td>
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<tr>
<td>Bharat Guthikonda, MD</td>
<td>LSU HSC Shreveport</td>
<td>Shreveport, LA</td>
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<tr>
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<td>Houston, TX</td>
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<tr>
<td>Carl Heilman, MD</td>
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<td>Boston, MA</td>
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<tr>
<td>Frank Hsu, MD</td>
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<td>Orange, CA</td>
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<tr>
<td>Ian Humphreys, DO</td>
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<td>Seattle, WA</td>
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<tr>
<td>Jacob Hunter, MD</td>
<td>University of Texas Southwestern</td>
<td>Dallas, TX</td>
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<tr>
<td>Maurizio Iacoangeli, MD</td>
<td>Politecnico University of Marche</td>
<td>Ancona, Italy</td>
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<tr>
<td>Alfred Marc Illoreta, MD</td>
<td>The Icahn School of Medicine</td>
<td>at Mount Sinai</td>
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<tr>
<td>Pascal Jabbour, MD</td>
<td>Jefferson Health System</td>
<td>Philadelphia, PA</td>
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<tr>
<td>Neal Jackson, MD</td>
<td>Michigan Ear Institute</td>
<td>Royal Oak, MI</td>
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<tr>
<td>John Jane, Jr, MD, PhD, FACS, FRCS</td>
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<td>Charlottesville, VA</td>
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<tr>
<td>David Jang, MD</td>
<td>Duke University</td>
<td>Durham, NC</td>
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<tr>
<td>Arif Janjua, MD FRCS</td>
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<td>Vancouver, BC, Canada</td>
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<tr>
<td>Brian Jankowitz, MD</td>
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<td>Pittsburgh, PA</td>
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<tr>
<td>Jeff Janus, MD</td>
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<td>Rochester, MN</td>
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<td>Walter Jean, MD</td>
<td>George Washington University Hospital</td>
<td>Washington, DC</td>
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<tr>
<td>Daniel Jethanamest, MD</td>
<td>NYU Langone Health</td>
<td>New York, NY</td>
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<tr>
<td>M. Yashar Kalani, MD, PhD</td>
<td>University of Virginia</td>
<td>Charlottesville, VA</td>
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<tr>
<td>Amin Kassam, MD</td>
<td>Aurora Health Care</td>
<td>Milwaukee, WI</td>
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<tr>
<td>Tim Kaufmann, MD, MS</td>
<td>Mayo Clinic</td>
<td>Rochester, MN</td>
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<tr>
<td>Daniel Kelly, MD</td>
<td>Pacific Neuroscience Institute &amp; John Wayne Cancer Institute</td>
<td>Santa Monica, CA</td>
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<tr>
<td>Tyler Kenning, MD</td>
<td>Albany Medical Center</td>
<td>Albany, NY</td>
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<tr>
<td>Alexander Khalessi, MD</td>
<td>UC San Diego Health</td>
<td>La Jolla, CA</td>
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<tr>
<td>Osaama Khan, MD, MS</td>
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<td>Warrenville, IL</td>
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<tr>
<td>Don Kikkawa, MD, FACS</td>
<td>UC San Diego Department of Ophthalmology</td>
<td>La Jolla, CA</td>
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<tr>
<td>Claudia Kirsch, MD</td>
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<tr>
<td>Cristine Klatt-Cromwell, MD</td>
<td>Washington University in St. Louis</td>
<td>St. Louis, MO</td>
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<tr>
<td>Engelbert Knosp, MD</td>
<td>Medical University Vienna</td>
<td>Wien, Austria</td>
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<tr>
<td>Bobby Korn, MD, PhD, FACS</td>
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Ankara University and Salzburg Paracelsus University
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<td>Rahul Mehta, MD, FRCS</td>
<td>Louisiana State University, New Orleans</td>
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<tr>
<td>Shlomo Melmed, MD</td>
<td>Cedars-Sinai Health System, Los Angeles, CA</td>
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<td>William Mendenhall, MD</td>
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<td>Mia Miller, MD</td>
<td>House Clinic, Los Angeles, CA</td>
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<td>Robert Miller, MD, MBA</td>
<td>Baylor College of Medicine, Houston, TX</td>
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<td>Basant Misra, MD</td>
<td>P D Hinduja National Hospital &amp; Medical Research Centre, Mumbai, India</td>
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<td>Kris Moe, MD, FACS</td>
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<td>Seo Moon, MD</td>
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<tr>
<td>Jacques Morcos, MD, FRCS, FAANS</td>
<td>University of Miami, Miami, FL</td>
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<td>Akio Morita, MD, PhD</td>
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<td>Pietro Mortini, MD</td>
<td>San Raffaele Hospital and Scientific Institute, Milan, Italy</td>
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<td>Richard Murray, MD</td>
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<td>Elizabeth Niccolli, MD</td>
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<td>Ajay Niranjan, MD, MBA</td>
<td>University of Pittsburgh, Pittsburgh, PA</td>
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<td>Daniel Nuss, MD, FACS</td>
<td>Louisiana State University School of Medicine, New Orleans, LA</td>
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<td>Kenji Ohata, MD, PhD</td>
<td>Osaka City University Graduate School of Medicine, Osaka, Japan</td>
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<td>Sacit Omay, MD</td>
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<td>Eng Ooi, FRACS, PhD, MBBS</td>
<td>Flinders University and FMC, Royston Park, Australia</td>
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<td>Manjari Pandey, MD</td>
<td>West Cancer Center/UTHSC, Germantown, TN</td>
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<td>Ben Panizza, MD</td>
<td>Princess Alexandra Hospital/University of Queensland, Queensland, Australia</td>
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<td>Arjun Parasher, MD</td>
<td>University of South Florida, Tampa, FL</td>
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<td>Joshua Pasol, MD</td>
<td>University of Miami Miller School of Medicine, Bascom Palmer Eye Institute, Miami, FL</td>
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<tr>
<td>Neil Patel, MD</td>
<td>Mayo Clinic, Rochester, MN</td>
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<td>Zara Patel, MD</td>
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<td>Akash Patel, MD</td>
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<td>Maria Peris-Celda, MD, PhD</td>
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<td>Martin Pham, MD</td>
<td>University of Southern California, Los Angeles, CA</td>
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<td>Randall Porter, MD</td>
<td>Acoustic Neuroma Controversies, Phoenix, AZ</td>
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<td>Gustavo Pradilla, MD</td>
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<td>Daniel Prevedello, MD</td>
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<tr>
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<tr>
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</table>
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Disclosures

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<td>Michael Chicoine</td>
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<td>Soha Ghossaini</td>
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<td>John Golfinos</td>
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<td>Perry Mansfield</td>
<td>Amersleep Diagnostics</td>
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**Patrick Wen**  
Abbvie  
AstraZeneca  
Cortice Bioscience  
GW Pharmaceuticals  
Insys  
Kadmon  
Merck  
Roche  
Vascular Biogenics  
Ziopharm

**Ian Witterick**  
Proteocyte Diagnostics Inc  
Advisory Committee  
Ownership Interest

**Bradford Woodworth**  
Cook Medical  
Consultant  
Consulting Fee

**Gabriel Zada**  
Nico Corporation  
Speaking/Teaching  
Honoraria

**Adam Zanation**  
Acclarent  
Consultant  
Consulting Fee

**Ali Zomorodi**  
Medtronic Cerebrovascular  
Speaking/Teaching  
Consulting Fee  
Contracted to serve as a device proctor

### Planning Committee & Abstract Reviewers

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**Disclosures**

**PLANNING COMMITTEE & ABSTRACT REVIEWERS**

**Jeremiah Alt**  
GlycoMira Therapeutics  
Consultant  
Consulting Fee

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Honoraria

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Educational grant

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Ownership Interest

**Kris Moe**  
SPI Surgical LLC  
Board Member  
IP Rights

**George Wanna**  
Cochlear Cop  
Consultant  
Consulting Fee

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Henn Abdulrahim
Ralph Abi Hachem
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Xuesong Liu  
Patricia Loftus  
Stephen Magill  
Robert Malyapa  
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Georgios Zenonos  
Lee Zimmer  
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Emiro Caicedo-Granados  
Roukoz Chamoun  
Ian Dunn  
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Shaan Raza  
Ravi Samy  
Felipe Santos  
Zoukaa Sargi  
Eugene Yu  
Galereh Zadeh
Schedule-at-a-Glance

FRIDAY, FEBRUARY 16, 2018

7:30 am – 8:30 am  SCIENTIFIC SESSIONS: Main Topics
• MAIN TOPIC: Management of Recurrent Meningiomas
• MAIN TOPIC: Orbital Complications of Skull Base Surgery: Prevention and Treatment
• MAIN TOPIC: Diseases of the Craniocervical Junction
• MAIN TOPIC: Controversies in Management of Lateral Skull Base Malignancies

8:35 am – 9:35 am  EXPERT DEBATES
• EXPERT DEBATE: Management of Spheno-Orbital Meningioma
• EXPERT DEBATE: How to Train Balanced Skull Base Surgeons: An International Panel
• EXPERT DEBATE: Optimal Strategy for Reconstruction after Endoscopic Skull Base Surgery
• EXPERT DEBATE: Vestibular Schwannomas: Debate on Treatment Type and Approaches

9:35 am – 10:15 am  Break in Exhibit Hall

10:15 am – 10:22 am  Welcome & Meeting Overview

10:15 am – 10:57 am  Presidential Address

10:57 am – 11:04 am  Research

11:04 am – 11:11 am  Special Announcement

11:11 am – 11:26 am  Honored Guest Lecturer

11:26 am – 11:46 am  Invited Guest Speaker

11:46 am – 12:01 pm  Honored Guest Lecturer

12:01 pm – 12:08 pm  Journal Presentation

12:15 pm – 1:15 pm  Lunch in Exhibit Hall for Non-Members

12:15 pm – 1:15 pm  Business Meeting and Lunch for Members

1:20 pm – 2:20 pm  SPECIAL SESSION & HOT TOPICS
• SPECIAL SESSION: Women in Skull Base Surgery
• HOT TOPIC: Vascular Considerations in Open and Endoscopic Skull Base Surgery: Dealing with Encased Arteries and Veins
• HOT TOPIC: Augmented Reality in Skull Base Surgery: A Novel Concept
• HOT TOPIC: Advances in Radiation Therapy for Skull Base Diseases

2:20 pm – 3:25 pm  SPECIAL SESSION & VIDEO SESSIONS
• SPECIAL SESSION: Mentorship: Why, How, and When
• VIDEO SESSION: Neurosurgery - Endoscopic Endonasal Procedures
• VIDEO SESSION: Otolaryngology/Rhinology
• VIDEO SESSION: Otology/Neurotology

3:30 pm – 4:15 pm  Break in Exhibit Hall

4:15 pm – 6:15 pm  Proffered Paper Sessions

6:15 pm – 7:45 pm  Welcome Reception in Exhibit Hall
SATURDAY, FEBRUARY 17, 2018

7:30 am - 8:30 am  SCIENTIFIC SESSIONS: Main Topics
- MAIN TOPIC: Complex Cranio-Orbito-Facial Defects: Reconstructive Challenges
- MAIN TOPIC: Chordomas: Have We Improved the Care in the Past Decade?
- MAIN TOPIC: The Hidden Role of Neurovascular Interventions in Skull Base Surgery from Indications to Management Complications
- MAIN TOPIC: Genomics, Molecular Biology, and Targeted Therapy for Skull Base Lesions

8:35 am - 9:35 am  EXPERT DEBATES
- EXPERT DEBATE: Head and Neck Malignancies with Skull Base Involvement: Controversies in Management
- EXPERT DEBATE: Craniopharyngiomas: From Molecular to Surgical Advances
- EXPERT DEBATE: Management of Bad Complications in Skull Base Surgery: How Could it Have Been Avoided?
- EXPERT DEBATE: Update on Management of Paragangliomas, When is Surgery Indicated?

9:35 am - 10:15 am  Break in Exhibit Hall

10:15 am - 10:50 am  Three-Minute Thesis

10:50 am - 11:20 am  Keynote Speaker

11:20 am - 11:40 am  Invited Guest Speaker

11:40 am - 11:55 am  Invited Guest Speaker

11:55 am - 12:10 pm  Honored Guest Lecturer

12:10 pm - 12:15 pm  Awards

12:15 pm - 1:15 pm  Lunch in Exhibit Hall

1:20 pm - 2:20 pm  SPECIAL SESSION & HOT TOPICS
- SPECIAL SESSION: Resident/Fellow Jeopardy
- HOT TOPIC: Intracranial Hypertension and Intracranial Pseudotumor
- HOT TOPIC: Value Based Healthcare in Skull Base Surgery
- HOT TOPIC: Cerebrovascular Surgery & Skull Base Surgery: The Perfect Match

2:25 pm - 3:25 pm  SPECIAL SESSION & VIDEO SESSIONS
- SPECIAL SESSION: Certification of the Skull Base Surgeon
- VIDEO SESSION: Neurosurgery Open Anterior Skull Base Procedures (3D presentation)
- VIDEO SESSION: Neurosurgery Open Lateral Skull Base Approaches (3D presentation)
- VIDEO SESSION: Neurosurgery Expanded Endoscopic Endonasal Procedures

3:30 pm - 4:15 pm  Break in Exhibit Hall

4:15 pm - 6:15 pm  Proffered Papers Sessions

6:45 pm - 7:30 pm  New Member Reception

7:30 pm - 10:00 pm  Gala Celebration
**NASBS Skull Base Surgery Summer Workshop**

**July 26-29, 2018 • LSU Health Sciences Center, New Orleans, LA**

Do you have a Neurosurgery Resident or Head & Neck Fellow in need of Skull Base Surgery hands-on training? Then send them to the NASBS Skull Base Surgery Summer Workshop at LSU.

**This course is not to be missed!**
Registration will be first-come, first served and opens Spring 2018.

For more information, visit [www.nasbs.org/nasbs-courses](http://www.nasbs.org/nasbs-courses) or contact NASBS Senior Meeting Planner, Paula Kupiec, at 310-424-3326 ext. 161 or paula@nasbs.org.

Celebrating the 300th Anniversary! **NEW ORLEANS TRICENTENNIAL 1718-2018**

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**Schedule-at-a-Glance**

**SUNDAY, FEBRUARY 18, 2018**

7:30 am - 8:30 am  **SCIENTIFIC SESSIONS & PITUITARY FORUM**
- PITUITARY FORUM: Updates on Functional Adenomas
- MAIN TOPIC: Hearing Preservation and Restoration
- HOT TOPIC: Update on Management of Anterior Skull Base Trauma
- HOT TOPIC: Endoscopic/Standard Transorbital Surgery, 360 Degrees Approach

8:35 am - 9:35 am  **SCIENTIFIC SESSIONS & PITUITARY FORUM**
- PITUITARY FORUM: Avoiding Complications and Optimizing Outcome in Pituitary Surgery
- EXPERT DEBATE: Sinonasal Cancer – Surgical vs. Non Surgical Management
- HOT TOPIC: Vascular and Lymphatic Diseases of the Head, Neck, & Skull Base
- HOT TOPIC: Inflammatory and Infectious Diseases of the Skull Base

9:35 am - 10:05 am  **Break**

10:10 am - 12:00 pm  **Proffered Papers Sessions**

12:00 pm - 12:30 pm  **General Session, Awards & Closing Remarks**
Pre-Meeting Course

2018 NASBS Skull Base Dissection Course

WEDNESDAY, FEBRUARY 14 & THURSDAY, FEBRUARY 15, 2018

UCSD Center for the Future of Surgery

The pre-meeting dissection workshop of the 28th Annual NASBS Meeting offers participants with hands-on cadaver dissection sessions and didactic sessions. Modules will take participants through open and endoscopic exercises to the central, lateral, and posterior skull base. The two-day cadaveric course is to promote anatomical understanding and practice of complex approaches to the skull base. Where possible different approaches to the same region will be employed with the benefit of contrasting and comparing the achieved exposure.

COURSE OBJECTIVE: Two-day cadaveric course to promote anatomical understanding and practice of complex approaches to the skull base. Where possible, different approaches to the same region will be employed with the benefit of contrasting and comparing the achieved exposure.

Transportation

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Shuttles

Wednesday, February 14, 2018
• 6:45 am: Shuttle will pick up attendees at the Loews Coronado Bay Resort and bring to UCSD Center for the Future of Surgery. The shuttle will leave on time, please be prompt.
• 5:45 pm: Shuttle will pick up attendees to UCSD Center for the Future of Surgery and return to the Loews Coronado Bay Resort.

Thursday, February 15, 2018
• 6:45 am: Shuttle will pick up attendees at the Loews Coronado Bay Resort and bring to UCSD Center for the Future of Surgery. The shuttle will leave on time, please be prompt.
• 5:45 pm: Shuttle will pick up attendees to UCSD Center for the Future of Surgery and return to the Loews Coronado Bay Resort.

DISCLOSURE INFORMATION

In compliance with the ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. All reported conflicts are managed by a designated official to ensure a bias-free presentation. Please see the insert to this program for the complete disclosure list.
Pre-Meeting Course Schedule

DAY 1: WEDNESDAY, FEBRUARY 14, 2018

UCSD Center for the Future of Surgery

7:45 am - 8:00 am  Welcome
TARGET: Anterior Cranial Base & Suprasellar - James Evans & Ricardo Carrau

8:00 am - 8:15 am  Subfrontal-transbasal Approach
Transbasal Approach: Step by Step - Dan Nuss

8:15 am - 8:30 am  Mini-pterional & Supraorbital Approaches
LECTURE: Supraorbital Approach: Step by Step - Dan Kelly & Garni Barkhoudarian

8:30 am - 8:45 am  Endoscopic Transcribriform Approach
LECTURE: Endoscopic Transcribriform Approach: Step by Step - Garrett W. Choby, MD

8:45 am - 9:00 am  Endonasal Planum-tuberculum Approach
LECTURE: Extended Endonasal Transplanum Approach: Step by Step - Andrew Little

Break

9:30 am - 11:30 am  Two Concurrent Prosections
Prosection of Transbasal Approach - Bharat Guthikonda
Dissection by Participants

10:00 am - 12:00 pm  Two Concurrent Prosections
Prosection of Extended Endonasal Approach to ABS - James Evans & Marc Rosen
Dissection by Participants

12:00 pm - 1:00 pm  Lunch with History Presentation - Michael O’Leary
TARGET: Cavernous Sinus and Meckel’s Cave

1:00 pm - 1:15 pm  Cavernous Sinus: Transcranial Approach
LECTURE: Dolenc Approach: Step by Step - Harry van Loveren

1:15 pm - 1:30 pm  Cavernous Sinus: Endonasal Approach - Danny Prevedello

1:30 pm - 1:45 pm  Transorbital Approaches
LECTURE: Anatomy of Orbit - Kris Moe

1:45 pm - 2:00 pm  Endonasal Approaches to the Orbit
LECTURE: Transorbital Approach: Step by Step - Ralph Abi Hachem

Break

2:30 pm - 4:30 pm  Two Concurrent Prosections
Prosection of Dolenc Approach - Ali Krist
Dissection by Participants

3:00 pm - 5:00 pm  Two Concurrent Prosections
Prosection of Transorbital & Endonasal Approach - Kris Moe & Adam Zanation
Dissection by Participants

5:00 pm - 5:30 pm  Open Discussion
Case Presentations - Anterior Fossa, Orbit, and/or Cavernous Sinus
Pre-Meeting Course Schedule

DAY 2: THURSDAY, FEBRUARY 15, 2018
UCSD Center for the Future of Surgery

7:45 am - 8:00 am  **Welcome**
TARGET: Petrous Apex - James Evans & Ricardo Carrau

8:00 am - 8:15 am  **Kawase Approach**
LECTURE: Anatomy of Middle Fossa - Jacques Morcos

8:15 am - 8:30 am  **Open Lateral Approaches to Petrous Apex**
LECTURE: Kawase approach: Step by step - Rahul Mehta

8:30 am - 8:45 am  **Endonasal Approach to Petrous Apex**
LECTURE: Anatomy of Endonasal Transpterygoid Approach - Rick Friedman

8:45 am - 9:00 am  **Endonasal Expanded Transpterygoid Approach**
LECTURE: Endonasal Transpterygoid Approach: Step by Step - Ivan El Sayed

Break

9:30 am - 11:30 am  **Two Concurrent Prosections TBD**
Prosection of Kawase Approach - Carlos David
Dissection by Participants

10:00 am - 12:00 pm  **Two Concurrent Prosections TBD**
Prosection of Endonasal Transpterygoid approach - Adam Zanation & Anand Germanwala
Dissection by Participants

12:00 pm - 1:00 pm  **Lunch**
TARGET: Clivus and CV Junction - Siviero Agazzi

1:00 pm - 1:20 pm  **Far Lateral Approach**
LECTURE: Far Lateral Approach: Step by Step - A. Samy Youssef

1:20 pm - 1:40 pm  **Endonasal Trans-clival Approach**
LECTURE: Endonasal Trans-clival Approach: Step by Step - Arturo Solares

1:40 pm - 2:00 pm  **Endonasal Approach to Odontoid and CVJ**
LECTURE: Endonasal Approach to Odontoid and CVJ - Zoukaa Sargi

Break

2:30 pm - 4:30 pm  **Prosection of Far Lateral Approach**
Prosection of Far Lateral Approach - Chandra Sen
Dissection by Participants

3:00 pm - 5:00 pm  **Prosection of Endonasal Transclival Approach**
Prosection of Endonasal Approach to CVJ - Paul Gardner & Carl Snyderman
Dissection by Participants

5:00 pm - 5:30 pm  **Open Discussion**
Case Presentations - Middle Fossa and Posterior Fossa
Meningioma Education Day

The Education Day this year will focus on meningiomas: a look at the past, the present, and a peak into what the future might hold. The pillars of the education day will surround surgical lessons in skull base meningiomas, pathological and molecular advancements in meningiomas, and integration of advancements in imaging for meningiomas. The Education Day is open to NASBS members and non-members. The content of the Education Day may be of interest to trainees and faculty with interests in neurosurgery, otolaryngology, radiology, radiation oncology, medical oncology, and pathology.

7:30 am – 10:30 am

SESSION 1: Surgical Lessons in Skull Base Meningiomas
MODERATORS: Farshad Nassiri, MD, MD & Ian Witterick, MD, MSc, FRCSC
SPEAKERS: Ossama Al-Mefty, MD; Daniel Prevedello, MD; Allan Vescan, MD; William Couldwell, MD, PhD; Manish Aghi, MD, PhD; Paul Gardner, MD; Kenji Ohata, MD, PhD; Jacques Morcos, MD, FRCS, FAANS; Laligam Sekhar, MD, FACS, FAANS; Marcos Tatagiba, MD, PhD; Chandranath Sen, MD; Fred Gentili, MD, MSc, FRCSC, FACS; Joao Paulo Almeida, MD; Michael McDermott, MD

- Principles of Expanded Endoscopic Endonasal Approach – Allan Vescan, MD
- Anterior Cranial Fossa Meningiomas: Opportunities and Limitations – Daniel Prevedello, MD
- Meningiomas of the Cavernous Sinus: What is the Ideal Management? – William Couldwell, MD, PhD
- Spheno-Orbital Meningioma: Approach and Reconstruction – Kenji Ohata, MD, PhD
- Discussion – Karolyn Au, MD; Manish Aghi, MD, PhD; Paul Gardner, MD
- Lateral Skull Base Meningiomas: Philosophies and Techniques – Jacques Morcos, MD, FRCS, FAANS
- Foramen Magnum Meningiomas: Principles of Management – Laligam Sekhar, MD, FACS, FAANS
- Overview of Rare Skull Base Surgical Approaches – Marcos Tatagiba, MD, PhD
- Clival Meningiomas: Approach and Nuances – Chandranath Sen, MD
- Meningiomas: The Past, Present, and Future – Ossama Al-Mefty, MD
- Discussion – Fred Gentili, MD, MSc, FRCSC, FACS; Joao Paulo Almeida, MD; Michael McDermott, MD

11:00 am – 12:30 pm

SESSION 2: Pathology and Molecular Advances in Management of Meningiomas
MODERATORS: Suganth Suppiah, MD & Ian Dunn, MD
SPEAKERS: Ken Aldape, MD; Priscilla Brastianos, MD, PhD; Orin Bloch, MD; Gelareh Zadeh, MD, PhD, FRCS(c)

- Molecular Advances in Benign Meningiomas: What’s new? – Ian Dunn, MD
- Mutational Landscape of Aggressive Meningiomas – Ian Dunn, MD
- From WHO to Methylation – Ken Aldape, MD
- Towards Precision Medicine for Meningiomas – Priscilla Brastianos, MD, PhD
- Immune Checkpoints in Meningiomas – Orin Bloch, MD
- Discussion – Ken Aldape, MD & Gelareh Zadeh, MD, PhD, FRCS(c)
SESSION 3: Integration of Imaging Technology to Advance Surgery
MODERATORS: Tim Kaufmann, MD & Patrick Wen, MD
SPEAKERS: Lola Chambless, MD; Joerg Tonn, MD, PhD; John YK Lee, MD; Orin Bloch, MD; David Raleigh, MD, PhD; Tim Kaufmann, MD, MS
- RANO Update – Patrick Wen, MD
- What can MRI tell us about Meningiomas? – Lola Chambless, MD
- PET imaging in Meningiomas – Joerg Tonn, MD, PhD
- Imaging Guided Surgery for Meningiomas – John YK Lee, MD
- Reverse Hybrid Radiation Planning for Skull Base Tumors – Orin Bloch, MD
- RadioSurgery of Skull Base Meningioma: What is There to Consider? – David Raleigh, MD, PhD
- Discussion – Tim Kaufmann, MD, MS & David Raleigh, MD, PhD

SESSION 4: Frontiers and Opportunities for Meningiomas
MODERATORS: Manish Aghi, MD, PhD & Amir Dehdashti, MD
SPEAKERS: Frederick Barker II, MD; Timothy Smith, MD, PhD, MPH; Michael McDermott, MD, MD; Juan Fernandez-Miranda, MD; Suganth Suppiah, MD; Kenji Ohata, MD, PhD; Farshad Nassiri, MD; Gelareh Zadeh, MD, PhD, FRCS(c); Ian Dunn, MD
- The History and Future of Meningiomas in the Field of Skull Base Surgery – Frederick Barker II, MD
- Digital Phenotyping of Meningioma Patients: A Novel Approach to Quality of Life Assessment – Timothy Smith, MD, PhD, MPH
- Neuro-Cognitive Outcomes – Innovative Care – Michael McDermott, MD, MD
- From the Lab to the OR in Skull Base Surgery – Juan Fernandez-Miranda, MD
- Patient Initiated App: For Symptom Registry – Suganth Suppiah, MD
- Update of International Meningioma and Cerebral Veins Society – Kenji Ohata, MD, PhD
- International Consortium on Meningiomas and SNO – Farshad Nassiri, MD
- Concluding Remarks – Gelareh Zadeh, MD, PhD, FRCS(c) & Ian Dunn, MD

Skull Base Primer Course
MODERATORS: Eric Monteiro, MD & Scott Wait, MD
SPEAKERS: Patrick Gullane, MD, CM, OOnt, MB, FRCSC, FACS, Hon FRACS, Hon FRCS, Hon FRCSI; Maria Peris-Celda, MD, PhD; Eugene Yu, MD; Eric Monteiro, MD; Perry Mansfield, MD; Brian Thorp, MD; Jon Grant, MD; Steven Kossman, MD; Jayson Sack, MD; John de Almeida, MD, MSc, FRCSC; Trina Sheedy, PA
- History of Skull Base Surgery and the NASBS – Patrick Gullane, MD, CM, OOnt, MB, FRCSC, FACS, Hon FRACS, Hon FRCS, Hon FRCSI
- Anatomy of the Skull Base – Maria Peris-Celda, MD, PhD
- Imaging of the Skull Base – Eugene Yu, MD
- Overview of Pathology in the Skull Base – Eric Monteiro, MD
- Treatment Strategy Basics – Scott Wait, MD
- Open Craniofacial Surgery – Perry Mansfield, MD
- Expanded Endoscopic Surgery – Brian Thorp, MD
- Principles and Practice of Radiation for Skull Base Tumors – Jon Grant, MD
- Chemotherapy and Immunotherapy for Skull Base Malignancy – Steven Kossman, MD
- Complications and Management – Jayson Sack, MD
- Outcomes – John de Almeida, MD, MSc, FRCSC
- Role of the NP/PA in Skull Base Practice – Trina Sheedy, PA
Scientific Program

FRIDAY, FEBRUARY 16, 2018

6:00 am - 6:30 pm  Registration  Constellation Foyer, 2nd Floor
7:00 am - 7:30 am  Breakfast  Commodore Foyer, 1st Floor & Constellation Foyer, 2nd Floor
7:30 am - 8:30 am  MAIN TOPIC SESSIONS

**MAIN TOPIC 1: Management of Recurrent Meningiomas**

**MODERATOR:** Carl Heilman, MD

**SPEAKERS:** Kenan Arnautovic, MD, PhD; Ian Dunn, MD; David Chalif, MD; Kibwei McKinney, MD; Michael Chicoine, MD

- Recurrent Meningiomas after Gross Total Resection – Kenan Arnautovic, MD, PhD
- Implications from Tumor Genomics for Treatment of Recurrent Meningiomas – Ian Dunn, MD
- Case Presentation of recurrent SW Meningioma S/P 5 Operations Including Endoscopic and Enucleation – David Chalif, MD
- Complications/Pitfalls in the Surgical Management of Recurrent Meningiomas – Kibwei McKinney, MD
- Re-Irradiation of Recurrent Meningiomas – Michael Chicoine, MD

This session is a review of management paradigms for recurrent meningiomas. It will cover surgical treatment option as well as adjunctive therapies and provide case examples, to be attended by neurosurgeons as well as radiation oncologists.

At the conclusion of this session, participants will be able to:
1. Discuss the best management strategies for recurrent meningiomas.
2. Classify meningioma subtypes and the best treatment strategies in cases of recurrence.
3. Choose the most efficient treatment options based on literature data for recurrent meningiomas.

**MAIN TOPIC 2: Orbital Complications of Skull Base Surgery: Prevention and Treatment**

**MODERATORS:** Shaan Raza, MD, FAANS & Sara Wester, MD

**SPEAKERS:** Rataphol Chris Dhepnorrarat, MBBS, FRACS; Zara Patel, MD; Amy Anstead, MD; Francois Lavigne, MD, FRCSC; Reid Thompson, BA, MD; Bobby Korn, MD, PhD, FACS

- Orbital Complications of Frontoethmoidal Mucocele – Rataphol Chris Dhepnorrarat, MBBS, FRACS
- Avoidance/Prevention of Orbital Complications of Skull Base Surgery (The Endoscopic Surgeon's Perspective) – Zara Patel, MD
- Orbital Complications of Endoscopic Resection of Skull Base Surgery and Treatment Options – Amy Anstead, MD
- Orbital Complications of Resection of Bony Skull Base Lesions – Francois Lavigne, MD, FRCSC
- Spheno-Orbital Meningiomas: Strategies to Optimize Orbital Outcomes – Reid Thompson, BA, MD
- Identification and Management of Orbital Complications of Skull Base Surgery – Bobby Korn, MD, PhD, FACS
- Panel Discussion – All

This session will cover the prevention and management of orbital complications that can be seen with the spectrum of skull base procedures. This session will be relevant to Neurosurgeons, Rhinologists, Head and Neck Surgeons, Oculoplastic Surgeons.

At the conclusion of this session, participants will be able to:
1. Plan surgical approaches in a manner to reduce the risk of orbital complications.
2. Recognize postoperative orbital complications after skull base surgery.
Scientific Program

MAIN TOPIC 3: Diseases of the Craniovertebral Junction
MODERATORS: Paul Gardner, MD & Randall Porter, MD

SPEAKERS: Claudia Kirsch, MD; Karolyn Au, MD; Siviero Agazzi, MD, MBA, FACS; Jamie van Gompel, MD; Ondrej Choutka, MD, FAANS, BMBCh, MA Hons (Oxon)

- Introduction – Paul Gardner, MD
- Key Radiographic Findings in Congenital Anomalies: Catastrophic Trauma and Cancer – Claudia Kirsch, MD
- Degenerative Pathology – Karolyn Au, MD
- Skin Incisions and Management of Suboccipital Soft Tissues to Approach the Craniovertebral Junction – Paul Gardner, MD
- Anterior Approaches to Craniocervical Pathology – Jamie van Gompel, MD
- Reconstruction of the Craniovertebral Junction after Resections Compromising Craniovertebral Junction Stability – Ondrej Choutka, MD, FAANS, BMBCh, MA Hons (Oxon)
- Panel Discussion – All

This session will cover all aspects of craniovertebral junction disease including preoperative planning, approaches and reconstruction. This session is ideal for otolaryngologists, neurosurgeons, plastic surgeons, radiation oncologists, and radiologists of all levels.

At the conclusion of this session, participants will be able to:
1. Correctly identify craniovertebral junction pathologies including degenerative, trauma and tumor.
2. Plan approaches to the craniovertebral junction from all corridors.
3. Understand challenges with reconstruction of the craniovertebral junction.

MAIN TOPIC 4: Controversies in Management of Lateral Skull Base Malignancies
MODERATORS: Giovana Thomas, MD & John Golfinos, MD

SPEAKERS: David Schramm, MD, FACS, FRCS; Steve Braunstein, MD, PhD; Carleton Corrales, MD; Carleton Corrales, MD; Aaron Wieland, MD; Cordula Matthies, MD, PhD; Giovanni Danesi, MD; Elizabeth Nicolli, MD

INTRODUCTION: Giovana Thomas, MD

CASE PRESENTATIONS: David Schramm, MD, FACS, FRCS; Steve Braunstein, MD, PhD; Carleton Corrales, MD; Carleton Corrales, MD; Aaron Wieland, MD; Cordula Matthies, MD, PhD; Giovanni Danesi, MD; Elizabeth Nicolli, MD

Malignancies involving the lateral skull base are considered rare. They comprise of advanced skin cancers involving the ear or preauricular skin; advanced parotid cancers involving the ear or temporal bone; cancers of the external and middle ear; and cancers involving the infratemporal fossa and temporomandibular joints. As treatment may involve specialized surgical resections, reconstruction and radiotherapy, multidisciplinary treatment approach should be provided to patients diagnosed with LSBM. This section will involve a panel of distinguished speakers providing multiple case presentations and discussions concerning the management of lateral skull base malignancies.

At the conclusion of this session, participants will be able to:
1. Be better able to diagnose lateral skull base malignancies.
2. Formulate a treatment plan with a multidisciplinary approach.
3. Recognize challenges in management of lateral skull base malignancies.

7:30 am – 9:35 am

RHoton Room

RHoton Anatomy: Anatomy of Clinoid Region, Cavernous Sinus, and Anterior Petrous Bone
SPEAKER: Antonio Bernardo, MD

Radiology
SPEAKER: Amy Lin, MD

Dueling Dissections: FTOZ/Anterior Clinoidectomy/Cavernous Sinus/Kawase
MODERATORS: John Golfinos, MD & Antonio Bernardo, MD
PARTICIPANTS: Carlos David, MD & Siviero Agazzi, MD, MBA, FACS
Scientific Program

8:35 am - 9:35 am  EXPERT DEBATE SESSIONS

EXPERT DEBATE 1: Management of Spheno-Orbital Meningiomas
MODERATORS: Ivan Radovanovic, MD, PhD & Don Kikkawa, MD, FACS
SPEAKERS: William Couldwell, MD, PhD; Harry van Loveren, MD, FAANS; Michael McDermott, MD; Khaled Aziz, MD, PhD; Howard Krauss, MD; Osaama Khan, MD, MS; Francesco Acerbi, MD, PhD

- Surgical Strategies for Recurrent Meningioma – William Couldwell, MD, PhD
- Intraoperative Imaging During Meningioma Resection – Harry van Loveren, MD, FAANS
- Complications Following Meningioma Resection – Michael McDermott, MD
- Improving Surgical Access for Meningioma Resection – Khaled Aziz, MD, PhD
- When Should the Optic Canal Be Decompressed in Patients With Skull Base Meningioma? – Howard Krauss, MD
- Radiosurgery for Meningioma – Osaama Khan, MD, MS
- Role of ICG Angiography in Meningioma Surgery – Francesco Acerbi, MD, PhD

This session will cover controversial topics in Management of Spheno-Orbital Meningiomas.

At the conclusion of this session, participants will be able to:
1. Identify current management techniques of Spheno-Orbital Meningiomas.
2. Distinguish between different treatment modalities.
3. Integrate newer concepts into Management of Spheno-Orbital Meningiomas.

EXPERT DEBATE 2: How to Train Balanced Skull Base Surgeons: An International Panel
MODERATORS: Jacques Morcos, MD, FRCS, FAANS & Ehab Hanna, MD
SPEAKERS: Dan Fliss, MD; Cem Meco, MD; Patrick Gullane, MD, CM, OOnt, MB, FRCSC, FACS, Hon FRACS, Hon FRCS, Hon FRCSI; Dennis Kraus, MD; Basant Misra, MD; Robert Behr, MD

The session will address the scope and challenges of two specific topics in Skull Base Surgery: how to train the next generation of skull base surgeons, and how to ensure that they are “balanced.” The moderators will be posing a series of questions to six panelists from the world of neurosurgery, head and neck, neuro otology and rhinology, encompassing the concepts of defining the field, the meaning of balance, the required skill sets, the pros and cons of the team approach, the duties of training programs, and many other pertinent topics. There are no lectures. The session should be of enormous interest to all, including trainees and practitioners of skull base surgery. Audience participation will be encouraged.

At the conclusion of this session, participants will be able to:
1. Articulate the ingredients that are felt to be essential to the formation of a great skull base surgeon.
2. Recognize the distinction between skull base surgery and related fields.
3. Implement changes in their own training programs to better prepare their trainees for a future career in skull base surgery.

EXPERT DEBATE 3: Optimal Strategy for Reconstruction after Endoscopic Skull Base Surgery
MODERATORS: Ali Zomorodi, MD & Eric Wang, MD
SPEAKERS: Raj Sindwani, MD; Arif Janjua, MD, FRCSC; Ricardo Carrau, MD; Adam Zanation, MD; Daniel Kelly, MD; Jose Gurrola, MD; Lee Zimmer, MD, PhD

There is some debate and heterogeneity around the optimum reconstruction strategies following endoscopic skull base surgery. We will present different clinical scenarios requiring skull base reconstruction after endoscopic surgery and discuss the best strategies to be used. Anyone with an interest in endoscopic skull base surgery should attend this session.

At the conclusion of this session, participants will be able to:
1. Develop an effective strategy for reconstruction following pituitary tumor resection.
2. Develop a consensus strategy for repair of defects following suprasellar tumor resection.
3. Discuss a consensus strategy for the repair of defects following resection of posterior fossa tumor resection.
### Expert Debate 4: Vestibular Schwannomas: Debate on Treatment Type and Approaches

**Moderator:** Michael Link, MD  
**Speakers:** Marcos Tatagiba, MD, PhD; Mia Miller, MD; Amir Dehdashti, MD; Akio Morita, MD, PhD; Gene Barnett, MD, MBA

- Retrosigmoid Craniotomy in the Semi-sitting Position – Marcos Tatagiba, MD, PhD
- Translabyrinthine Surgery for Large VS – Mia Miller, MD
- Hearing Preservation Surgery for Small Tumors – Amir Dehdashti, MD
- Techniques to Improve Facial Nerve Outcomes – Akio Morita, MD, PhD
- Gamma Knife Radiosurgery for VS – Gene Barnett, MD, MBA

During this one-hour debate, the panelists will discuss various approaches to removing vestibular schwannomas and the nuances involved. Additionally, as time allows, demonstrative cases will be reviewed with the expert panel providing opinions about how they would manage a variety of common scenarios.

At the conclusion of this session, participants will be able to:
1. Articulate the different surgical approaches available to treat a vestibular schwannoma and expectations for cranial nerve preservation.
2. Demonstrate an understanding of the role of stereotactic radiosurgery in the treatment of vestibular schwannoma.
3. Recognize some of the perils and pitfalls that can occur when operating a vestibular schwannoma.

<table>
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<tr>
<th>Time</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>9:35 am – 10:15 am</td>
<td>Morning Break in Exhibit Hall</td>
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<tr>
<td>10:15 am – 12:15 pm</td>
<td>General Session</td>
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<tr>
<td>10:15 am – 10:22 am</td>
<td>Welcome &amp; Meeting Overview</td>
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<tr>
<td>10:22 am – 10:32 am</td>
<td>Historical Video</td>
</tr>
<tr>
<td>10:15 am – 10:57 am</td>
<td>Presidential Address: Dynamic Mentoring of the Skull Base Surgeon: Training our Future</td>
</tr>
<tr>
<td>10:57 am – 11:04 am</td>
<td>Research</td>
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<tr>
<td>11:04 am – 11:11 am</td>
<td>Special Announcement</td>
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<tr>
<td>11:11 am – 11:26 am</td>
<td>Honored Guest Lecturer: The Evolution of the NASBS from Inception to Present</td>
</tr>
<tr>
<td>11:26 am – 11:46 am</td>
<td>Invited Guest Speaker: The Making of a Neurosurgeon: From Your Hands to Theirs</td>
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<tr>
<td>11:46 am – 12:01 pm</td>
<td>Honored Guest Lecturer: The Skull Base Surgeon of the Future</td>
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<tr>
<td>12:01 pm – 12:08 pm</td>
<td>Journal Presentation</td>
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<tr>
<td>12:15 pm – 1:15 pm</td>
<td>Business Lunch for Members</td>
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</tbody>
</table>
### HOT TOPIC 1: Vascular Considerations in Open and Endoscopic Skull Base Surgery: Dealing with Encased Arteries and Veins

**Commodore B**

**Moderators:** Harry van Loveren, MD, FAANS & Kadir Erkmen, MD

**Speakers:** Amir Dehdashti, MD; Gavin Britz, MD; Ossama Al-Mefty, MD; Daniel Prevedello, MD; Anil Nanda, MD; B. Gregory Thompson, MD

- Dealing with Arterial Encasement in Clinoidal and Tuberculum Sella Meningiomas – Amir Dehdashti, MD
- Evolution of Indications for Bypass Surgery with Changes in Technology, Patient Expectations for Normal Cranial Nerve Function, and the Emergence of Radiosurgery – Gavin Britz, MD
- Prevention and Treatment of Serious Vascular Complications in Open Skull Base Surgery – Ossama Al-Mefty, MD
- Vascular Considerations in Endoscopic Endonasal Procedures – Daniel Prevedello, MD
- Immediate and Delayed Vascular Complications with Skull Base Meningiomas – Anil Nanda, MD
- Vascular Considerations and Strategies in Handling Large and Complex Hemangioblastomas – B. Gregory Thompson, MD

This session will deal with the nuances of avoiding vascular complications in open and endoscopic skull base surgery and repairing vascular injuries should they occur. This session should be attended by all neurosurgeon, rhinologists and head and neck surgeons who participate in endoscopic or open skull base surgical procedures.

At the conclusion of this session, participants will be able to:
1. Recognize potential vascular complication of skull base surgery on preoperative imaging.
2. Describe nuanced surgical repairs for vascular injuries in skull base surgery.
3. Discuss aspect of residency training to deal with vascular complications.

### HOT TOPIC 2: Augmented Reality in Skull Base Surgery: A Novel Concept

**Commodore A**

**Moderators:** Joshua Bederson, MD & Amin Kassam, MD

**Speakers:** Neil Martin, MD; Raj Shrivastava, MD; Alfred Marc Calo Iloreta, MD; Philippe Bijlenga, MD, PhD; Ben Dixon, MBBS(Hons), PhD, FRACS

- Overview and Introduction to Augmented Reality in Neurosurgery – Joshua Bederson, MD
- Introduction of Speakers – Amin Kassam, MD
- Patient Engagement Enhanced by Virtual Reality – Neil Martin, MD
- Augmented and Virtual Reality for Surgical Planning in Endoscopic and Skull Base – Raj Shrivastava, MD
- Expansion of the Endoscopic Portal Through Augmented and Virtual Reality in Skull Base Surgery – Alfred Marc Calo Iloreta, MD
- A Discussion on Intraoperative Registration – Philippe Bijlenga, MD, PhD
- Inattentional Blindness and Augmented Reality Surgical Navigation – Ben Dixon, MBBS(Hons), PhD, FRACS

This session is for all levels of neurosurgeons reviewing current and future generation simulation, modeling, and visualization approaches to augment the pre- and intraoperative skull base surgical workflow. Though these are nascent tools, their clinical application has led to significant advances for skull base surgery especially in the areas of pre-operative planning and intraoperative navigation. Next-generation tools on the horizon hold the promise to expand the use case for skull base modeling and lead to pervasive adoption across the industry.

At the conclusion of this session, participants will be able to:
1. Distinguish the different types of advanced digital technologies underlying augmented and virtual reality in skull base surgery.
2. Categorize the different types of advanced digital technologies underlying augmented and virtual reality in skull base surgery and application of these tools to benefit pre- and intraoperative surgical planning.
3. Identify a best-practices picture for successful clinical implementations of next-generation simulation, modeling, and visualization tools.
HOT TOPIC 3: Advances in Radiation Therapy for Skull Base Diseases

MODERATORS: Nagy Elsayyad, MD, FACP & Robert Malyapa, MD, PhD

SPEAKERS: Normand Laperriere, MD, FRCP; William Mendenhall, MD; Maged Ghaly, MD; John Ben Wilkinson, MD; Aashish Bhatt, MD

• Role of Pencil Beam Scanning Protons in Radiotherapy for Skull Base Diseases – Robert Malyapa, MD, PhD
• Advances in Photon RT in Skull Base Chordomas and Chondrosarcomas – Normand Laperriere, MD, FRCP
• Radiotherapy for Skull Base Paragangliomas – William Mendenhall, MD
• Advances in Stereotactic Radiation for Vestibular Schwannomas – Maged Ghaly, MD
• Re-Irradiation of the Skull Base – John Ben Wilkinson, MD
• Radiotoxicity at the Skull Base – Aashish Bhatt, MD

This is a session designed to address a brief update to skull base surgeons on radiotherapy of the skull base including: emerging technologies, state of the art literature on tumors at the skull base commonly treated with radiation therapy and an update on radio-toxicity at the skull base.

At the conclusion of this session, participants will be able to:
1. Review emerging new technologies in radiation therapy for skull base diseases.
2. Discuss current status of radiotherapeutic options for some common skull base tumors.
3. Review current literature on radiotoxicity at the skull base.

1:20 pm – 2:20 pm  SPECIAL SESSIONS

SPECIAL SESSION 1: Women in Skull Base Surgery

MODERATORS: S. Tonya Stefko, MD & Darlene Lubbe, MD

SPEAKERS: Lori Lemonnier, MD; Soha Ghossaini, MD; Corinna Levine, MD, MPH; Stacey Grey, MD; Deanna Sasaki-Adams, MD; Maria Koutourousiou, MD

• Introduction – S. Tonya Stefko, MD
• What Do We Know? – Darlene Lubbe, MD; Lori Lemonnier, MD; Soha Ghossaini, MD; Corinna Levine, MD, MPH; Stacey Grey, MD; Deanna Sasaki-Adams, MD; Maria Koutourousiou, MD
• What Do You Know?

We would like to enjoy a lively and far-reaching discussion examining our many diverse experiences in this unique, highly skilled, highly demanding, and team based specialty. Anyone with interest in recognition and cultivation of other’s talents is welcome.

At the conclusion of this session, participants will be able to:
1. Integrate the experience of other, more senior faculty, into their practices and their considerations of what type of example they would like to set for their trainees and partners.
2. Prepare to discuss one significant, non-technical issue with their fellows.

1:20 pm – 3:25 pm  RHOTON ROOM

RHOTON ANATOMY: Anatomy of Petrous Bone, Semicircular Canal, Facial Canal, CP Angle Through Both the Presigmoid and Retrosigmoid Approach

SPEAKER: Maria Peris-Celda, MD, PhD

RADIOLOGY

SPEAKER: Eugene Yu, MD

DUELING DISSECTIONS: Presigmoid Retrolabyrinthine Approach

MODERATORS: Harry van Loveren, MD, FAANS & Raul Mehta, MD, FRCS
PARTICIPANTS: Richard Friedman, MD, PhD/Marc Schwartz, MD & Matthew Carlson, MD/Michael Link, MD
### Scientific Program

**2:25 pm - 3:25 pm  SPECIAL SESSIONS**

**SPECIAL SESSION 2: Mentorship: Why, How, and When**

**Commodore CDE**

**MODERATORS:** Devyani Lal, MD & Ian Witterick, MD, MSc, FRCSC

**SPEAKERS:** Jacques Morcos, MD, FRCS, FAANS; Jatin Shah, MD; John Leonetti, MD; Stacey Gray, MD; Paul Gardner, MD; Stella Lee, MD

- **Introduction** – Devyani Lal, MD & Ian Witterick, MD, MSc, FRCSC
- **The Value of Mentorship for Skull Base Surgeons** – Jacques Morcos, MD, FRCS, FAANS
- **Junctures When Mentorship is Most Critical for Success** – Jatin Shah, MD
- **Characteristics that Distinguish Successful Mentees** – John Leonetti, MD
- **Mentoring Surgeons of the New Millennium** – Stacey Gray, MD
- **Finding the Right Mentors: Practical Pearls** – Paul Gardner, MD
- **Mentorship for Women and Minorities in Surgery** – Stella Lee, MD
- **Panel Discussion – All**

The session will focus on practical take-away points on the value of mentorship, the junctures when mentorship is critical to success and how to seek and provide successful mentorship. The panel will also discuss mentoring surgeons of the new millennium, female and minority candidates. This session will be valuable to junior and senior skull base surgeons who are interested in the mentorship as mentors or mentees.

At the conclusion of this session, participants will be able to:
1. Assess the value of mentorship.
2. Employ strategies to create meaningful mentor-mentee relationships.
3. Integrate personalized approaches to negotiate barriers imposed by generational, minority and gender issues.

**2:25 pm - 3:25 pm  VIDEO SESSIONS**

**VIDEO SESSION 1: Neurosurgery - Endoscopic Endonasal Procedures**

**Commodore B**

**MODERATORS:** Garni Barkhoudarian, MD & Christopher Farrell, MD

**SPEAKERS:** John Jane, Jr, MD, PhD, FACS, FRCS; Francesco Doglietto, MD, PhD; James Liu, MD; Pablo Recinos, MD; Gabriel Zada, MD; A Samy Youssef, MD, PhD

- **Pituitary Adenoma Resection – Pseudo Capsular Dissection** – John Jane, Jr, MD, PhD, FACS, FRCS
- **Surgical Management of Pituitary Adenoma with Cavernous Sinus Invasion** – Francesco Doglietto, MD, PhD
- **Craniopharyngioma Resection and Infundibulum Preservation** – James Liu, MD
- **Surgical Nuances of Endonasal Meningioma Resection** – Pablo Recinos, MD
- **Surgical Nuances of Endonasal Chordoma Resection** – Gabriel Zada, MD
- **Surgical Nuances of Endonasal Schwannoma Resection** – A Samy Youssef, MD, PhD

This session is aimed to neurosurgeons, ENT surgeons, radiation oncologists, radiologists and ophthalmologists who treat patients with parasellar tumors. The session will demonstrate surgical nuances involved in the resection of various parasellar pathologies and discuss implications of surgical outcomes and post-operative management.

At the conclusion of this session, participants will be able to:
1. Recognize pertinent pituitary anatomy to preserve function.
2. Demonstrate surgical techniques for cavernous sinus dissection.
3. Demonstrate surgical techniques for skull-base non-adenomatous tumor resection.
### VIDEO SESSION 2: Otolaryngology/Rhinology

**MODERATORS:** Zara Patel, MD & Arjuna Kuperan  
**SPEAKERS:** Patricia Loftus, MD; Eng Ooi, FRACS, PhD, MBBS; Arjun Parasher, MD; Clementino Solares, MD; Cristine Klatt-Cromwell, MD  
- Microadenomas – Patricia Loftus, MD  
- Macroadenomas – Eng Ooi, FRACS, PhD, MBBS  
- Craniopharyngioma and Rathke’s Cleft Cyst – Arjun Parasher, MD  
- Esthesioneuroblastoma and Meningioma – Clementino Solares, MD  
- Endoscopic Skull Base Reconstruction Beyond the Nasoseptal Flap – Cristine Klatt-Cromwell, MD

This session will provide the otolaryngology and rhinology perspective of multiple common endoscopic skull base procedures. Some of these procedures are performed in combination with our neurosurgical colleagues and some are performed alone. Otolaryngology residents, rhinology fellows, rhinologists and otolaryngologists with a desire to perform more or increasingly complex endoscopic skull base procedures will benefit from attending this session.

At the conclusion of this session, participants will be able to:
1. Identify the common endoscopic approaches to the anterior and middle cranial fossa.
2. Recognize the differences in surgical technique needed to approach and resect tumors in different skull base locations and with different pathology.
3. Compare multiple methods for reconstructing the skull base endoscopically.

### VIDEO SESSION 3: Otology/Neurotology

**MODERATOR:** J. Thomas Roland, Jr.  
**SPEAKERS:** Rebecca Chiffer, MD; Daniel Jethanamest, MD; Esther Vivas, MD; Neal Jackson, MD; Richard Gurgel, MD; Neil Patel, MD  
- Repair of Lateral Skull Base CSF Leak, Combined Approach – Rebecca Chiffer, MD  
- Intracochlear Schwannoma and Cochlear Implantation in Patient with NF2 – Daniel Jethanamest, MD  
- Repair of CSF Leak to Temporal Bone: Middle Cranial Fossa Approach – Esther Vivas, MD  
- Management of Retained Bullet and Shrapnel after Gunshot Wound to the Temporal Bone – Neal Jackson, MD  
- Giant Cell Skull Base Tumor – A Rare Lesson Illustrating the Benefits of a Multidisciplinary Surgical Collaboration – Richard Gurgel, MD  
- Resection of Geniculate Hemangioma with Interposition Nerve Graft – Neil Patel, MD

In this session, presenters will deliver a short presentation followed by an edited video of a neurotological skull base procedure. The presenters will discuss important aspects of the procedure covering anatomical and decision making paradigms. The session is appropriate for all lateral skull base surgeons.

At the conclusion of this session, participants will be able to:
1. Apply principles learned at this session to the everyday practice setting.
2. Employ multidisciplinary engagement for complex medical/surgical issues.
3. Recognize that traditional thinking and management can be questioned and new concepts applied to clinical issues.

### Afternoon Break in Exhibit Hall

**Exhibit Pavilion**

### PROFFERED PAPERS SESSION

**PROFFERED PAPERS 1: Meningioma**

001: **NEAR-INFRARED FLUORESCENT SURGERY FOR SKULL BASE AND INTRACRANIAL MENINGIOMA** – Shayoni Nag, BA, Love Buch, BS, Jun Jeon, BS, Steve Cho, BS, Sunil Singhal, MD, John YK Lee, MD, MSCE; University of Pennsylvania

002: **EXTENT OF PERITUMORAL EDEMA AND MENINGIOMA LOCATION PREDICTS FUNCTIONAL OUTCOMES AND 1-YEAR MORTALITY AFTER RESECTION IN OLDER-AGED PATIENTS** – Joshua Loewenstern, BA, Amit Aggarwal, MD, Margaret Pain, MD, Ernest Barthelemy, MD, Joshua Bederson, MD, Raj K Shrivastava, MD; Icahn School of Medicine at Mount Sinai
003: PREOPERATIVE EMBOLIZATION OF SKULL BASE MENINGIOMAS: OUTCOMES IN THE ONYX ERA - Colin J. Przybylowski, MD, Jacob F Baranoski, MD, Alfred See, MD, Rami Almefty, MD, Dale Ding, MD, Andrew F Ducruet, MD, Felipe C Albuquerque, MD, “Brooke and Women’s Hospital

004: RETRACTORELESS SURGERY: STROKES, EDEMA, AND GLIOSIS OUTCOMES FOLLOWING SKULL BASE SURGERY - Christina Jackson, Jeffrey Ehresman, BS, Tito Vivas-Buitrago, Chetan Bettegowda, Alessandro Olivieri, Alfredo Quinones-Hinojosa, Kaisorn Chaichana, Johns Hopkins University School of Medicine

005: RISK OF DEVELOPING POSTOPERATIVE DEFICITS BASED ON TUMOR LOCATION AFTER SURGICAL RESECTION OF AN INTRACRANIAL MENINGIOMA - Jeff Ehresman, BS, Tomas Garzon-Muvdi, MD, Davis Rogers, BA, Michael Lim, MD, Gary L Gallia, MD, PhD, Jon Weingart, MD, Henry Brem, Chetan Bettegowda, MD, PhD, Kaisorn L Chaichana, Johns Hopkins University School of Medicine

006: EXCESS CHARGES IN INTRACRANIAL MENINGIOMA SURGERY: THE INFLUENCE OF PATIENT AND HOSPITAL CHARACTERISTICS - Sean McKee, Anthony Yang, Anthony Del Signore, Joshua Bederson, Alfred Iloreta, Raj Shrivastava, Icahn School of Medicine at Mount Sinai

007: ENDOSCOPIC ENDO-NASAL AND SUPRAORBITAL KEYHOLE SURGERY FOR THE MANAGEMENT OF ANTERIOR SKULL BASE MENINGIOMAS: OVERCOMING THE BARRIERS BETWEEN ABOVE AND BELOW APPROACHES - Davide Nasi, MD, Maurizio Jacongeli, MD, Massimo Re, Mauro Dobran, MD, Alessandro Di Rienzo, Maurizio Gliadi, Fabrizio Mancini, Massimo Scerrati, MD, Department of Neurosurgery, Section of Minimally Invasive and Skull Base Surgery, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy, Department of ENT, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy

008: A SINGLE INSTITUTION REVIEW OF 84 WHO II MENINGIOMAS, 38 LOCATED IN THE SKULLBASE, CONTINUES TO SUPPORT SURGERY AS THE PRIMARY TREATMENT MODALITY - Philip D Tatman, BS, Joshua W Osbun, MD, Owais Ahmad, MD, Tina Busald, Carolina Parada, PhD, Luis Gonzalez-Cuyar, MD, Donald Born, MD, PhD, Manuel Ferreira, MD, PhD, University of Washington

009: A NOVEL RISK STRATIFICATION TOOL TO PREDICT HOSPITAL LENGTH OF STAY AFTER SURGERY FOR MENINGIOMA - Peter J Morone, MD, MSC, Thomas G Stewart, PhD, Scott L Zuckermen, MPH, Michael C Dewan, MD, MSC, Akshitkumar Mistry, MD, Siviero Agazzi, MD, MBA, Harry R van Loveren, MD, Reid C Thompson, MD, Vanderbilt Department of Neurosurgery, Vanderbilt Department of Biostatistics, University South Florida Department of Neurosurgery

010: DIFFERENTIAL USAGE OF RETROSIGMOID APPROACH EXTENSIONS (SUPRAMETAL EXTENSION AND TENTORIOTOMY) IN PETROCLIVAL MENINGIOMAS MANAGEMENT - Yury Shuley, MD, PhD, Ovanes Akobyan, MD, North-Western State Medical University named after I.I. Mechnikov, City Hospital #2

011: CLINICAL VALIDATION OF A PROPOSED INTRAOPERATIVE CONSISTENCY GRADING SYSTEM FOR MENINGIOMAS - Kyohsei Itamura, Ki-Eun Chang, Joshua Lucas, Gabriel Zada, University of Southern California

012: DIFFERENTIAL GENE EXPRESSION AND PATHWAY ANALYSIS OF RADIATION-INDUCED MENINGIOMAS - Suganth Suppiah, MD, Jeff Liu, PhD, Shirin Karimi, Ken Aldape, Gelareh Zadeh, PhD, FRCS; University of Toronto

013: T2/FLAIR CHARACTERISTICS OF MENINGIOMA BORDERS ON MRI MAY BE ASSOCIATED WITH BRAIN INVASION - Gillian Harrison, MD, Rajeev Sen, MD, Girish Fatterpekar, MD, Donato Pacione, MD, Chandranath Sen, MD, NYU Langone Health, University of Washington Medical Center

PROFFERED PAPERS 2: Vestibular Schwannomas - Commodore B

014: LONG TERM HEARING OUTCOMES FOLLOWING STEREOTACTIC RADIOSURGERY IN PATIENTS WITH VESTIBULAR SCHWANNOMAS - Peter L Santa Maria, MD, PhD, Yangyang Shi, BS, Richard K Gurgel, MD, Carleton E Corrales, MD, Scott G Solty, MD, Chloe Santa Maria, Steven D Chang, Nikolas H Blevins, Iris C Gibbs, Robert K Jackler, Department of Otologyngy-Head and Neck Surgery, Stanford University, Palo Alto, CA, USA, Department of Otolaryngology-Head and Neck Surgery, University of Utah, Salt Lake City, UT, USA, Division of Otolaryngology-Head and Neck Surgery, Brigham and Women’s Hospital, Harvard Medical School, Boston, MA, USA, Department of Radiation Oncology, Stanford University, Palo Alto, CA, USA, Department of Neurosurgery, Stanford University

015: PRE-HABILITATION WITH INTRA-TYMPANIC GENTAMYCIN IN VESTIBULAR SCHWANNOMA PATIENTS AND POST-OPERATIVE CONTRALATERAL BENEFITS: A PROSPECTIVE STUDY - Natasha Amiraragh, FRCSEd, ORL, HNS; DOHNS, MBChB, Margaret Gagnini, Ms, John A Crowther, Mr, Richard Locke, Lorna Hastings, Ms, William Taylor, Mr, Georgios Kontorinis, Mr, NHS Greater Glasgow and Clyde

016: SURGICAL-PLANNED SUBTOTAL RESECTION OF VESTIBULAR SCHWANNOMA DIVERGES FROM THE OPTIMAL RADIOSURGICAL TARGET DEFINED BY ADAPTIVE HYBRID SURGERY SOFTWARE - John P Sheppard, MS, Carlito Lagman, MD, Thien Nguyen, BS, Yasmine Alkhalid, BS, Courtney Duong, BS, Giaarpuram Prashant, MD, Orin Bloch, MD, Isaac Yang, MD, David Geffen School of Medicine at UCLA, Department of Neurosurgery, UCLA, The Northwestern Brain Institute at the Feinberg School of Medicine
**Scientific Program**

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<td>017</td>
<td>QUALITY OF LIFE IN VESTIBULAR SCHWANNOMA PATIENTS: A LONGITUDINAL STUDY</td>
<td>Lauren E. Miller, Jason A. Brant, James Naples, Douglas C. Bigelow, John Y. Lee, Michael J. Ruckenstein, and Michael J. Link.</td>
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<td>019</td>
<td>MODIFIED EXCLUSIVE ENDOSCOPIC TRANSCANAL TRANSPROMONTORIAL APPROACH FOR VESTIBULAR SCHWANNOMAS</td>
<td>In Seok Moon, MD, PhD, Hyun-Jin Lee, MD, Sung-il Nam, MD, Michelle Jiyoungh Suh, Dongchul Cha, and Jae Young Choi.</td>
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<td>020</td>
<td>EFFECT OF HOSPITAL VOLUME ON ACOUSTIC NEUROMA SURGERY OUTCOMES IN THE MODERN TREATMENT ERA</td>
<td>Daniel Heiferman, MD, Carolina Szuwajewski, Giselle Malina, Adrianne Cobb, and Kurt Grahnke.</td>
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<td>021</td>
<td>CEREBROVASCULAR COMPLICATIONS DURING VESTIBULAR SCHWANNOMA SURGERY</td>
<td>Christopher S. Grafeo, MD, Avital Perry, MD, Tarek Rayan, MD, PhD, Lucas P. Carlstrom, MD, PhD, Christopher Marcellino, MD, Joshua D. Hughes, MD, Maria Peris-Celda, MD, Michael J. Link, MD, and Mayo Clinic.</td>
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<td>022</td>
<td>INCREASED HOSPITAL SURGICAL RESECTION VOLUME DECREASES THE RATE OF 30- AND 90-DAY READMISSION AFTER ACOUSTIC NEUROMA SURGERY</td>
<td>Robin M Babadjoumi, MS, Timonthy Wen, MD, Daniel Donoho, MD, Ian Buchanan, MD, Steven Y. Cen, MD, Rick A. Friedman, Arun A. Amar, MD, Jonathan Russin, Steven L. Giannotta, MD, William J. Mack, MD, Frank J. Atteleno, MD, and Keck School of Medicine of USC.</td>
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<td>023</td>
<td>DIAGNOSTIC ACCURACY OF INTRAOPERATIVE NEUROPHYSIOLOGIC AUDITORY MONITORING IN PREDICTING HEARING OUTCOME IN ACOUSTIC NEUROMA SURGERY: A SYSTEMATIC REVIEW</td>
<td>Steven A. Zuniga, MD, Brandon Kamrava, BS, Pamela C. Roehm, MD, PhD, and Lewis Katz School of Medicine at Temple University.</td>
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<td>024</td>
<td>A CROSS-SECTIONAL SURVEY OF THE NORTH AMERICAN SKULL BASE SOCIETY ON VESTIBULAR SCHWANNOMA: CURRENT PRACTICE PATTERNS OF VESTIBULAR SCHWANNOMA EVALUATION AND MANAGEMENT IN NORTH AMERICA</td>
<td>Matthew L. Carlson, MD, Jamie J. van Gompel, Mark Wiet, Nicole M. Tombers, RN, Anand K. Devaiah, MD, Devyani Lal, MD, Jacques J. Morcos, MD, Michael J. Link, MD, Mayo Clinic, Rush University Medical Center, Boston University School of Medicine, and University of Miami.</td>
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<td>026</td>
<td>DEFINING THE MINIMALLY CLINICALLY IMPORTANT DIFFERENCE FOR PATIENTS WITH VESTIBULAR SCHWANNOMA</td>
<td>Michael J. Link, Panagiotis Kerezoudis, Nicole M. Tombers, Maria Peris Celda, Matthew L. Carlson, Mayo Clinic.</td>
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<td>027</td>
<td>DELAYED FACIAL NERVE PARALYSIS AFTER VESTIBULAR SCHWANNOMA RESECTION</td>
<td>Robert J. Yawn, MD, Matthew M. Dedmon, MD, PhD, Reid C. Thompson, MD, Matthew R. O’Malley, MD, Marc L. Bennett, MD, MMHC, Alejandro Rivas, David S. Haynes, MD, MMHC, and Vanderbilt University Medical Center.</td>
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**PROFFERED PAPERS 3: Sinonasal Neoplasms**

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<td>028</td>
<td>DURAL INVASION PREDICTS NECK METASTASES IN ESTHESIONEUROBLASTOMA</td>
<td>John P. Marinelli, BS, Jeffrey R. Janus, MD, Jamie J. van Gompel, MD, Michael J. Link, MD, Eric J. Moore, MD, Kathryn M. Van Abel, MD, Brandon W. Peck, MD, Christine M. Lohse, MS, Daniel L. Price, MD, Mayo Clinic School of Medicine, Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester Minnesota, Department of Neurosurgery, Mayo Clinic, Rochester MN.</td>
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<td>029</td>
<td>RARE MALIGNANCIES OF SINONASAL TRACT</td>
<td>Kaberi Kakati, Prathamesh Pai, and Tata Memorial Hospital.</td>
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<td>031</td>
<td>THE EVOLVING ROLE OF IMMUNOTHERAPY IN LATE STAGE SINONASAL MELANOMA</td>
<td>Perry T. Mansfield, MD, FRCS, Kathryn M. Liang, Hannah G. Goldman, Senta Clinic.</td>
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<td>032</td>
<td>EXPRESSION OF PROGRAMMED CELL DEATH-LIGAND 1 IN ESTHESIONEUROBLASTOMA</td>
<td>Nyall R. London Jr, MD, PhD, Justin Bishop, MD, Lisa Rooper, MD, Janis Taube, MD, Masaru Ishii, MD, PhD, Gary Gallia, MD, PhD, Johns Hopkins, University of Texas - Southwestern.</td>
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033: ADENOID CYSTIC CARCINOMA OF THE SINONASAL TRACT: A REVIEW OF THE NATIONAL CANCER DATABASE – Michael A Kohanski, MD, PhD, Edward C Kuan, MD, MBA, Ryan M Carey, MD, Alan D Workman, BA, Charles C Tong, MD, James N Palmer, MD, Nithin D Adappa, MD, Jason G Newman, MD, Jason A Brant, MD; University of Pennsylvania

034: NON SURGICAL APPROACHES TO SINONASAL UNDIFFERENTIATED CARCINOMA – Moran Amit1, Ahmed Salama Abdelmeguid2, Teeramatwanich Watcharepornsiri, Shierly Su2, Michael E Kupferman3, Diana Roberts4, Shaan Raza2, Franco Demonte1, Ehab Hanna1; ‘MD Anderson, ‘MDA

035: INDUCTION CHEMOTHERAPY FOR CHEMOSELECTION IN ADVANCED SINONASAL MUCOSAL MELANOMA – Moran Amit, Ehab Hanna, Ahmed Salama Abdelmeguid, Shaan Raza, Diana Roberts, Franco Demonte, Michael Kupferman, Rodabe Amaria, Shierly Su, MDA

036: INTRAOPERATIVE ARTERY LIGATION REDUCES BLEEDING DURING JUVENILE NASOPHARYNGEAL ANGIOFIBROMA SURGERY: AN ALTERNATIVE TO PREOPERATIVE EMBOLIZATION – M Tabai, MD, M H Sampaio, MD, PhD, A J Graciano, MSc, MD, J R Paschoal, MD, PhD, E Sakano, MD, PhD, C T Chone, MD, PhD; Department of Otolaryngology - Faculty of Medical Sciences - University of Campinas

037: MENTAL HEALTH DISORDERS ASSOCIATED WITH SINONASAL AND SKULL BASE MALIGNANCIES: A LARGE COHORT STUDY – Ji Hyae Lee1, AB, Brad Zacharia, MD, MS2, Douglas Leslie, PhD3, Guodong Liu, PhD2, Djibril Ba, MPH4, Neerav Goyal, MD, MPH1; Penn State College of Medicine, ‘Penn State Milton S. Hershey Medical Center

038: SINONASAL MELANOMA: A SINGLE INSTITUTION ANALYSIS AND FUTURE DIRECTIONS – Taylor Manton, MD, Brittny Tillman, MD, Jonathan McHugh, MD, Emily Bellile, MS, Erin McKean, MD, MBA, Scott McLean, MD, PhD; University of Michigan

039: ACTIVATION OF THE TGF BETA SIGNALING PATHWAY IN NON-RESPONDERS TO INDUCTION CHEMOTHERAPY IN SINONASAL UNDIFFERENTIATED CARCINOMA – Yoko Takahashi, PhD, Frederico O Gieber-Netto, MSc, DDS, PhD, Diana Bell, MD, Moran Amit, MD, PhD, Dianna Roberts, PhD, Curtis Pickering, Jeffrey N Myers, MD, PhD, Ehab Hanna; The University of Texas MD Anderson Cancer Center

040: RADIOGRAPHIC PREDICTORS FOR MALIGNANT TRANSFORMATION OF INVERTED PAPILLOMA – Carol Yan, MD1, Mrudula Penta, MD1, Vishal S Patel, BS2, Zara M Patel, MD3; ‘Stanford University, ‘Weil Cornell School of Medicine

041: ROLE OF INDUCTION CHEMOTHERAPY IN ORBITAL PRESERVATION IN THE MANAGEMENT OF ADVANCED STAGED SINONASAL MALIGNANCIES: A SYSTEMATIC REVIEW – Tawfiq Khoury, MD, Kevin Choi, MD, Ralph Abi-Hachem, Greg Samsa, PhD, David Jang, MD, Ralph Abi-Hachem; Duke

PROFFERED PAPERS 4: Anatomical Studies

042: THE TRANSVERSE PROCESS OF THE ATLAS AS AN EXTENSION OF SKULL BASE ANATOMY AND SURGICAL FOCAL POINT – Jiaafar Basma, MD, Vincent N Nguyen, MD, Hassan Saad, MD, Madonna Michael, MD, Jon Robertson, Jeffrey Sorenson; ‘University of Tennessee Health Science Center, Memphis, Tennessee, 2Arkansas Neuroscience Institute, CHI St. Vincent Infirmary, Little Rock, Arkansas, 3Semmes-Murphey Clinic, Memphis, Tennessee

043: THE SUPERIOR HYPOPHYSEAL ARTERY FROM THE ENDOSCOPIC ENDONASAL PERSPECTIVE: ANATOMICAL VARIATIONS AND SURGICAL NUANCES FOR ITS MOBILIZATION AND PRESERVATION – Huy Q Truong, MD, Robert Zanabria, MD, Edinson Najera, MD, Emrah Celtikci, MD, Xicai Sun, MD, PhD, Hamid Borghei-Razavi, MD, Paul A Gardner, MD, Juan C Fernandez-Miranda, MD; UPMC Center for Cranial Base Surgery

044: A LINE THROUGH THE DIGASTIC POINT AND POSTERIOR EDGE OF THE CONDYLE: AS A NEW SURFACE LANDMARK FOR FINDING THE HORIZONTAL PART OF THE SIGMOID SINUS IN SUBBASAL CRANIOTOMIES – Satoshi Matsuo, PhD1, Noritaka Komune, PhD2, Ryota Kurogi3, Yojiro Akagi4, Koji Iihara, PhD1; 1Department of Neurosurgery, National Hospital Organization, Kyushu Medical Center, 2Department of Otorhinolaryngology, Graduate School of Medical Sciences, Kyushu University, 3Department of Neurosurgery, Graduate School of Medical Sciences, Kyushu University

045: LATERAL TRANSORBITAL VS ENDONASAL TRANSPTERYGOID APPOACH TO THE LATERAL RECESS OF THE SPHENOID SINUS – A COMPARATIVE ANATOMICAL STUDY – Joao Tiago A Belo, MD, Huy Q Truong, MD, Joao Paulo Mangussi-Gomes, MD, Eric W Wang, MD, Juan C Fernandez-Miranda, MD; 1Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, 2Department of Otolaryngology, University of Pittsburgh School of Medicine, 3Department of Neurosurgery, University of Pittsburgh School of Medicine

047: THINNING OR DEHISCENCE OF BONE IN STRUCTURES OF THE MIDDLE CRANIAL FOSSA FLOOR IN SUPERIOR SEMICIRCULAR CANAL DEHISCENCE – John J Arsenault, Tyler K Miao, Regan Ferraro, MD, Noriko Salamon, MD, Issac Yang, MD, Quinton Gopen, MD; 1The Warren Alpert Medical School of Brown University, 2University of California, Los Angeles, 3Department of Radiology, University of California, Los Angeles, 4Department of Radiology, UCLA David Geffen School of Medicine, 5Department of Neurosurgery, University of California, Los Angeles, 6Department of Head and Neck Surgery, University of California, Los Angeles
### Scientific Program

#### 048: PROXIMAL BRANCHES OF THE ANTERIOR CEREBRAL ARTERY: ANATOMICAL STUDY AND APPLICATIONS TO ENDOSCOPIC ENDOANASAL SURGERY
- Edinson Najera, MD, Ana Carolina Igami Nakassa, MD, Salomon Cohen, MD, Huy Quang Truong, MD, Hamid Borghel-Razavi, MD, PhD, Paul A Gardner, MD, Juan C Fernandez-Miranda, MD, Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, Department of Neurological Surgery, University of Pittsburgh School of Medicine

#### 049: THE MEDIAL WALL OF THE CAVERNOUS SINUS: SURGICAL ANATOMY, LIGAMENTS, AND SURGICAL APPLICATION
- Huy Q Truong, MD, Edinson Najera, MD, Joao Tiago A Belo, MD, Eric W Wang, MD, Carl H Snyderman, MD, MBA, Paul A Gardner, MD, Juan C Fernandez-Miranda, MD, Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, Department of Neurological Surgery, University of Pittsburgh School of Medicine

#### 050: SURGICAL MANAGEMENT OF GENICULATE NEURALGIA, CLINICAL SERIES AND ANATOMICAL STUDY
- Maria Peris-Celda, MD, PhD, Soliman Oushy, MD, Avital Perry, MD, Christopher S Graffeo, Lucas P Carlstrom, MD, PhD, Michael J Link, MD, Mayo Clinic, Rochester, MN

#### 051: TRANSMAXILLARY ENDOSCOPIC APPROACH TO THE LATERAL RECESS OF THE SPHENOID SINUS - AN ANATOMICAL STUDY
- Joao Mangussi-Gomes, MD, Huy Q Truong, MD, Joao Tiago A Belo, MD, Paul A Gardner, MD, Eric W Wang, MD, Juan C Fernandez-Miranda, MD, Carl H Snyderman, MD, MBA, Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, Department of Neurological Surgery, University of Pittsburgh School of Medicine

#### 052: DEVELOPING SEE-THROUGH VISION FOR MIDDLE FOSSA SURGERY, A SURGICAL ANATOMY STUDY
- Maria Peris-Celda, MD, PhD, Avital Perry, MD, Lucas P Carlstrom, MD, PhD, Christopher S Graffeo, MD, Colin L Driscoll, MD, Michael J Link, MD, Department of Neurosurgery Mayo Clinic, Rochester, MN, Department of Otologyngology Mayo Clinic, Rochester, MN

#### 053: THE DURAL ARCHITECTURE OF THE CAVERNOUS SINUS' ANTERIOR ROOF AND CLINOID SPACE. MICROSURGICAL ANATOMY AND TECHNICAL NUANCES FOR INTRACAVERNOUS AND PERISSELLAR ENDOscopic SURGERY
- Stefan Lieber, MD, Wei-Hsin Wang, MD, Maximiliano Nunez, MD, Eric W Wang, MD, Carl H Snyderman, MD, MBA, Paul A Gardner, MD, Juan C Fernandez-Miranda, MD, Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, United States, Department of Otolaryngology, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, United States

#### 054: THREE DIFFERENT ROUTES TO REACH TO THE MECKEL'S CAVE REGION: AN ANATOMICAL STUDY
- Alejandro Monroy-Sosa, MD, Sriskant Chakravarthi, MD, MSc, Lior Gonen, MD, Melanie Fukui, MD, Jonathan Jennings, MD, Richard Rovin, MD, Amin Kassam, MD, Aurora Neuroscience Innovation Institute

- Stefan Lieber, MD, Maximiliano Nunez, MD, Wei-Hsin Wang, MD, Cristian Ferrareze Nunes, MD, Eric W Wang, MD, Carl H Snyderman, MD, MBA, Paul A Gardner, MD, Juan C Fernandez-Miranda, MD, Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, United States, Department of Otolaryngology, University of Pittsburgh Medical Center, Pittsburgh, Pennsylvania, United States

#### PROFFERED PAPERS 5: Innovative Techniques

##### 056: 7T STRUCTURAL, VASCULAR, AND DIFFUSION IMAGING OF TRIGEMINAL NEURALGIA: PRELIMINARY RESULTS IN PATIENTS
- Judy Alper, MD, O’Halloran, Jos Bederson, Bradley Delman, Raj Shrivastava, Priti Balchandani, Radiology, Translational and Molecular Imaging Institute, Biomedical Engineering, City University of New York, Mount Sinai Medical Center, Icahn School of Medicine at Mount Sinai, Neurosurgery and Otolaryngology, Mount Sinai Medical Center, Neuroradiology, Mount Sinai Medical Center, Radiology, Translational and Molecular Imaging Institute

##### 057: FULLY ENDOSCOPIC MVD APPROACH FOR HEMIFACIAL SPASM
- Tracy S Ma, MD, Sanford Roberts, Brendan McShane, Dmitry Petrov, MD, John Y Lee, MD, University of Pennsylvania

##### 058: CEREBROVASCULAR PATHOLOGY TREATED VIA THE OCULOMOTOR-TENTORIAL TRIANGLE
- Justin Mascitelli, Sirin Gandhi, Michael Lawton, BNI

##### 059: SKULL BASE 3D MODELING AND RAPID PROTOTYPING OF RIGID BUTTRESS FOR GASKET-SEAL CLOSURE USING OPERATIVE ENDOscopic IMAGING: CADAVERIC FEASIBILITY
- James Shin, MD, MSc, Jonathan Forbes, MD, Kurt Lehner, BS, Hilarie Tomasiewicz, MD, Theodore Schwartz, MD, Douglas Phillips, MD, FACR, Well Cornell Medicine, NewYork-Presbyterian/Weill Cornell Medical Center, Hofstra-Northwell Health School of Medicine
## Scientific Program

### 060: PRIMARY DURAL REPAIR AFTER ENDOSCOPIC ENDONASAL APPROACHES TO THE CRIBRIFORM USING NON-PENETRATING TITANIUM CLIPS: INITIAL EXPERIENCE AND SURGICAL TECHNIQUE
- Chad A Glenn, MD
- Thomas Ostergard, MD, Robert G Briggs, BS, Simone E Dekker, MD, PhD, Kibwe A McKinney, MD, Kenneth Rodriguez, MD, Nicholas C Bambakidis, MD, Cordell M Baker, BA, Andrew K Conner, MD, Michael E Sughrue, MD, 1Department of Neurosurgery, Case Western Reserve University, 2Department of Neurosurgery, University of Oklahoma Health Sciences Center, 3Department of Otolaryngology, University of Oklahoma Health Sciences Center, 4Department of Otolaryngology, Case Western Reserve University

### 061: A DIRECT COMPARISON OF NEAR-INFRARED IMAGING SYSTEMS FOR DETECTING INTRACRANIAL TUMORS
- Steve S Cho, BS, Love Buch, BS, Shayoni Nag, BS, Brendan McShane, BS, Jun Jeon, BS, Sophie Su, MD, Sunil Singhal, MD, John Y Lee, MD, MSCE, 1Perelman School of Medicine at the University of Pennsylvania, 2Department of Neurosurgery at the Hospital of the University of Pennsylvania, 3Department of Surgery at the Hospital of the University of Pennsylvania

### 062: ERGONOMICS OF 3-D EXOSCOPE FOR LATERAL TEMPORAL BONE RESECTION
- Ryan Belcher, MD, Arturo Solares, MD, Emory University School of Medicine, Department of Otolaryngology - Head and Neck Surgery

### 063: IDEAL TRAJECTORY PLANNING FOR COMBINED ENDOSCOPIC THIRD VENTRICULOSTOMY AND PINEAL REGION BIOPSY: A VOLUMETRIC ANALYSIS OF BRAIN AT RISK
- Brandon D Liebelt, MD, Fangxiang Chen, Antonio Birolı, Peter Nakaji, MD, Barrow Neurological Institute

### 064: THE SUPRACEREBELLAR TRANS-TENTORIAL APPROACH FOR TREATMENT OF VASCULAR LESIONS OF THE MEDIAL TEMPORO-OCCIPITAL REGION
- Georgios Klironomos, Shamir Chakraborty, David Chalif, Avi Setton, Amir Dehdashti, Department of Neurosurgery, Hofstra North Shore-Long Island Jewish School of Medicine, and North Shore-Long Island Jewish Health System, Manhasset, New York.

### 065: META-ANALYSIS OF TREATMENT OUTCOMES OF NON-SACCULAR ANEURYSMS IN THE POSTERIOR CIRCULATION BY FLOW DIVERTERS
- Satoshi Kiyofuji, MD, Christopher S Graffeo, MD, Avital Perry, MD, Hassan M Murad, MD, Kelly D Flemming, MD, Giuseppe Lanzino, MD, Leonardo Rangel-Castilla, MD, Waleed Brinjikji, MD, 1Tokyo Metropolitan Police Hospital, 2Mayo Clinic, 3Wayne State University

### 066: SURGICAL NAVIGATION AND MIRROR IMAGE OVERLAY: A NOVEL APPROACH FOR ORBITAL RECONSTRUCTION AFTER SKULL BASE TUMOR RESECTION
- Sarah R Akkina, MD, MS, Randall A Bly, MD, Kris S Moe, MD, University of Washington Department of Otolaryngology - Head and Neck Surgery

### 067: TRANS-GLABELLAR APPROACH FOR ANTERIOR SKULL BASE AND SINUNASAL TUMORS
- Raúl A Hernández-Estrada, MD, Ramsés U Ortiz-Leyva, MD, Gervith Reyes-Soto, MD, Bernardo Cacho-Díaz, MD, Martin Granados-García, MD, National Cancer Institute Mexico

### 068: CONTRALATERAL TRANSMAXILLARY CORRIDOR: SURGICAL PLANNING AND PATHWAY ANALYTICS
- Rajeev Sen, MD, Rajeev C. Saxena, MD, MBA, Nava Aghdasi, PhD, Yangming Li, PhD, Randall Bly, MD, Paul Gardner, MD, Carl Snyderman, MD, Kris S Moe, MD, 1Univ. of Washington, 2Univ. of Pittsburgh

### 069: COMPARISON OF TRANSBASAL, ENDOSCOPIC ENDONASAL, AND COMBINED APPROACHES FOR OLFATORY GROOVE MENINGIOMAS: A SINGLE SURGEON’S EXPERIENCE
- Nicole A Silva, BS, Ilesha A Sevak, BA, Jean Anderson Eloy, MD, FACS, James K Liu, MD, FACS, FAANS; Rutgers New Jersey Medical School

## PROFFERED PAPERS 6: Cranioopharyngiomas

(Cambrıa)

### 071: HEMORRHAGIC RATHKE'S CLEFT CYST: CLINICAL PRESENTATION AND TRANSSPHENOIDAL SURGICAL OUTCOMES IN A SERIES OF 6 PATIENTS
- Lauren K Schooner, BS, Phillip A Bonney, MD, Michelle A Wedemeyer, MD, PhD, Michelle Lin, MD, Martin H Weiss, MD, John D Carmichael, MD, Gabriel Zada; Keck School of Medicine, University of Southern California

### 072: SURGICAL MANAGEMENT OF RECURRENT RATHKE'S CLEFT CYSTS
- Michelle A Wedemeyer, MD, PhD, Michelle Lin, BA, Vance L Fredrickson, MD, Anush Arakelyan, MPH, Daniel Bradley, MD, Daniel A Donoho, MD, Martin H Weiss, MD, John D Carmichael, MD, Gabriel Zada, MD; University of Southern California

### 073: A CONSIDERATION OF POTENTIAL MODIFICATIONS IN CURRENT GRADING SCALES OF CRANIOPHARYNGIOMA IN CHILDREN
- Reid Hoshide, Robert Rennert, Mark Calayag, Michael Levy; UC-San Diego

### 074: CRANIOPHARYNGIOMA: AN 18-YEAR EXPERIENCE
- Sheri K Palejwala, MD, Andrew Conger, MD, Amy Eisenberg, ARNP, Chester Griffiths, MD, Pejman Cohan, MD, Sarah Rettinger, MD, Robert Wollman, MD, Howard Krauss, MD, Garni Bakhourdian, MD, Daniel F Kelly, MD; Pacific Neuroscience Institute
Scientific Program

4:15 pm – 5:15 pm
**RHOTON ROOM**
Constellation AB

**RHOTON ANATOMY: 3D Anatomy of Far Lateral, Extreme Lateral, and Transcondylar Approach, Lower Cranial Nerve Trajectory, Jugular Foramen, Neck Dissection**
SPEAKER: Jeffrey Sorenson, MD

**RADIOLOGY**
SPEAKER: Tanya Rath, MD

**DEUELING DISSECTIONS: Lateral/Jugular Foramen, Extreme Lateral and Neck Dissection of IJV and Lower Cranial Nerves**
MODERATORS: Siviero Agazzi, MD, MBA, FACS & Dennis Kraus, MD
PARTICIPANTS: Daniel Nuss, MD, FACS/Chandranath Sen, MD & Ehab Hanna, MD/Amir Dehdashti, MD

5:15 pm – 6:00 pm  **JNLS-B Skull Base: Operative Video Meeting** (invite only)  Avalon
6:15 pm – 7:45 pm  **Welcome Reception & Poster Reception**  Exhibit Pavilion
7:30 pm – 10:00 pm  **Past President’s Dinner** (Invite Only)  Sunset Terrace
7:30 pm - 10:00 pm  **Brain Lab Symposium**  Commodore A
**Scientific Program**

**SATURDAY, FEBRUARY 17, 2018**

6:30 am - 6:00 pm  **Registration**  
Constitution Foyer, 2nd Floor

7:00 am - 7:30 am  **Breakfast**  
Commodore Foyer, 1st Floor & Constituion Foyer, 2nd Floor

7:30 am - 8:30 am  **MAIN TOPIC SESSIONS**

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<th>MAIN TOPIC 5: Complex Cranio-Orbito-Facial Defects: Reconstruction Challenges</th>
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<td>MODERATORS: Jason Leibowitz &amp; Benjamin Erickson</td>
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<tr>
<td>SPEAKERS: Jason Toranto, MD; Peter Costantino, MD; Joseph Curry, MD; Ralph Gilbert, MD; Chrisfouad Alabiad, MD; Peter Neligan, MD</td>
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<tr>
<td>• Mandibular Reconstruction with 3D Printing – Jason Toranto, MD</td>
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<td>• Reconstruction Following Endoscopic Nasopharyngectomy – Peter Costantino, MD</td>
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<td>• Free flaps for skull base reconstruction – Joseph Curry, MD</td>
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<td>• Orbito Maxillary Reconstruction Following Skull Base Surgery – Ralph Gilbert, MD</td>
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<td>• Reconstructing the Orbital Roof After Cranio-Orbital Tumor Resection – Chrisfouad Alabiad, MD</td>
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<td>• Facial Re-Animation Following Skull Base Surgery – Peter Neligan, MD</td>
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This session will explore techniques for addressing a variety of reconstructive challenges engendered by complex cranio-orbital-facial defects resulting from skull base surgery. The panel includes perspectives from head & neck, craniofacial plastic and oculoplastic surgeons.

At the conclusion of this session, participants will be able to:
1. Articulate advanced approaches to orbital, maxillary and mandibular reconstruction in the setting of complex craniofacial defects.
2. Implement optimal strategies for facial reanimation following skull base surgery.
3. Evaluate reconstructive techniques following endoscopic nasopharyngectomy.

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<th>MAIN TOPIC 6: Chordomas: Have We Improved the Care in the Past Decades?</th>
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<td>MODERATORS: Gustavo Pradilla &amp; Pietro Mortini</td>
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<tr>
<td>SPEAKERS: Luis Borba, MD, PhD, IFAANS; Fred Gentili, MD, MSc, FRCSC, FACS; Osama Al-Mefty, MD; Ian Dunn, MD; Chandranath Sen, MD</td>
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<td>• Surgical Strategies in The Management of Skull Base Chordomas – Luis Borba, MD, PhD, IFAANS</td>
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<td>• Have Endoscopic Techniques Made a Difference in Patient Outcomes in Chordomas? – Fred Gentili, MD, MSc, FRCSC, FACS</td>
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<td>• Chordomas: Have We Improved the Care in the Past Decades? – Osama Al-Mefty, MD</td>
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<td>• Genomics/Genetics of Skull Base Chordomas – Ian Dunn, MD</td>
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<td>• Impact of the Chordoma Foundation – Chandranath Sen, MD</td>
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This session will provide an updated perspective on surgical treatment options for skull base chordomas, contrast open and endoscopic approaches, discuss evolutions in adjuvant therapies, and review the impact of research and patient support organizations in the development of new therapies for this challenging condition.

At the conclusion of this session, participants will be able to:
1. Integrate open and endoscopic options for surgical treatment of skull base chordomas.
2. Formulate patient-specific treatment goals considering the efficacy of currently available adjuvant therapies.
3. Support the mission of patient advocacy groups as non-governmental sources of research.
MAIN TOPIC 7: Hidden Role of Neuroendovascular Interventions in Skull Base Surgery from Indications to Management Complications

MODERATOR: Ketan Bulsara, MD

SPEAKERS: Alexander Khalessi, MD; Henry Woo, MD; Ali Alaraj, MD; Babu Welch, MD; Brian Jankowitz, MD; B. Gregory Thompson, MD; Ali Sultan, MD

- Introduction – Ketan Bulsara, MD & Mohamed Elhammady, MD
- Indications for Skull Base Surgery Planning – Alexander Khalessi, MD
- Preoperative Embolization (Non Liquid Embolics) – Henry Woo, MD
- Embolization with Liquid Embolic Agents – Ali Alaraj, MD
- Indication to Avoid Endovascular Treatment as Adjunct for Skull Base Surgery – Ali Sultan, MD
- Adjunct for Proximal Control – B. Gregory Thompson, MD
- Complication Management Non Endoscopic – Babu Welch, MD
- Complication Management Endoscopic Injury – Brian Jankowitz, MD

All health care providers treating skull base pathologies would benefit from this session.

At the conclusion of this session, participants will be able to:
1. Identify available preoperative endovascular techniques for skull base pathologies.
2. Understand the role of endovascular techniques in complication management.
3. Understand the limitations of endovascular techniques for skull base pathologies.

MAIN TOPIC 8: Genomics, Molecular Biology, and Targeted Therapy for Skull Base Lesions

MODERATORS: Mario Ammirati, MD, MBA & Gelareh Zadeh, MD, PhD, FRCS(c)

SPEAKERS: Cem Meco, MD; Yoko Takahashi, MD; Akash Patel, MD; Manjari Pandey, MD; Lola Chambless, MD

- Modern Immunological Markers for CSF Leak Detection: Guidelines and Pitfalls for Reliable Clinical Use – Cem Meco, MD
- Sino-Nasal Cancer: Genetic Alterations and its Prognostic/Therapeutic Implications – Yoko Takahashi, MD
- Genomics of Meningiomas and Biological Behavior. Is it Possible to Predict Which Meningioma is at High Risk for Recurrence/Progression? – Akash Patel, MD
- Targeted Chemotherapeutic Options for Atypical and Anaplastic Meningiomas – Manjari Pandey, MD
- Targeted Therapy for Craniopharyngiomas – Lola Chambless, MD

This session will discuss the current status of targeted therapy for skull base lesions based on genomics and molecular biology. In addition, one presenter will discuss "Modern Immunological Markers for CSF Leak Detection: Guidelines and Pitfalls for Reliable Clinical Use,” a relevant topic in the era of endoscopic skull base surgery with its heightened potential for CSF leak. Neurosurgeons, ENT surgeons and Neuro-oncologists should, among others, should attend.

At the conclusion of this session, participants will be able to:
2. Have an understanding of available targeted therapies and clinical trials advancing care of skull base patients.
3. Identify how to contribute to active ongoing research in this area.
EXPERT DEBATE 5: Head and Neck Malignancies with Skull Base Involvement: Controversies in Management

MODERATORS: Ivan El-Sayed, MD & Seo Moon, MD
SPEAKERS: Ben Panizza, MD; John de Almeida, MD, MSc, FRCSC; Zoukaa Sargi, MD; Michael McDermott, MD; Christopher Rasseeckh, MD; Peter Costantino, MD

The rare nature of skull base malignancy and different capabilities of managing institutions limits data acquisition of optimal treatment strategies. A panel of experts will debate evolving modern treatment strategies in a series of challenging cases.

At the conclusion of this session, participants will be able to:
1. Recognize and prioritize importance of histopathology and genetic markers in formulation of treatment plan.
2. Identify indications and limitations of endoscopic and open surgical approaches.
3. Appraise evolving role of chemotherapy and radiation in management of skull base malignancy.

EXPERT DEBATE 6: Craniopharyngiomas: From Molecular to Surgical Advances

MODERATORS: Marvin Bergsneider, MD & David Jang, MD
SPEAKERS: Sacit Omay, MD; James Evans, MD; Kenji Ohata, MD, PhD; Apio Atunes, MD, PhD; Samuel Barnett, MD

Craniopharyngioma cases will be presented to a panel of experts, consisting of neurosurgeons and otolaryngologists. There will be an emphasis on controversies and recent advances in the management of craniopharyngiomas.

At the conclusion of this session, participants will be able to:
1. Compare the various surgical approaches to craniopharyngiomas.
2. Identify non-surgical treatment options for craniopharyngiomas.
3. Implement a multidisciplinary treatment plan for patients with complex craniopharyngiomas.

EXPERT DEBATE 7: Management of Bad Complications in Skull Base Surgery: How Could it Have Been Avoided?

MODERATORS: Corinna Levine, MD, MPH & William Couldwell, MD, PhD
SPEAKERS: Corinna Levine, MD, MPH; Ralph Abi Hachem, MD; Mustafa Baskaya, MD; William Couldwell, MD, PhD; Peter Nakaji, MD; Marc Tewfik, MDCM, MSc, FRCSC; Daniel Barrow, MD

This session reviews some of the common and less common complications in skull base surgery. Specifically, the cases will focus on pre-operative, intra-operative, and post-operative care that will help to minimize or avoid these complications.

At the conclusion of this session, participants will be able to:
1. Recognize preoperative issues that can lead to intra- or postoperative problems.
2. Manage intraoperative complications such as bleeding or tumor involvement of cranial nerves and vessels.
3. Employ postoperative strategies to limit complications such as vascular problems or CSF leak.

EXPERT DEBATE 8: Update on Management of Paragangliomas, When is Surgery Indicated?

MODERATOR: Daniel Nuss, MD, FACS
SPEAKERS: Rita Bhatia, MD; Sandeep Samant, MD; Simon Angeli, MD; Luis Borba, MD, PhD, IFAANS; Paul Camarata, MD

- Imaging of Paragangliomas – Rita Bhatia, MD
- Recent Changes in the Paradigm for Treatment of Paraganglioma Patients – Sandeep Samant, MD
- Clinical Decision-making for Best Outcomes in Paraganglioma Patients – Simon Angeli, MD
- Neurosurgical Indications for Surgical Paragangliomas – Luis Borba, MD, PhD, IFAANS
- Technical Considerations to Reduce Morbidity in Paraganglioma Surgery – Paul Camarata, MD

Historically, management of skull base paragangliomas was heavily weighted toward surgical resection, but recent trends have shifted toward more conservative management, symptom control, and radiation, with surgery reserved for selected cases. This session, with representation from experts in Radiology, Otolaryngology and Neurosurgery, will explore the issues of proper patient selection and a focus on optimal decision-making for patients with paragangliomas.

At the conclusion of this session, participants will be able to:
1. Distinguish between those paraganglioma patients who must have surgery from those who may do just as well or better with nonsurgical therapy.
2. Prioritize clinical and radiographical findings that help stratify patients toward or away from surgical therapy.
3. Organize surgical and perioperative strategies that reduce morbidity in paraganglioma patients who do undergo surgical treatment.
### Scientific Program

#### Morning Break in Exhibit Hall

**TH**

- **10:15 am - 12:15 pm**
  - **THREE-MINUTE THESIS**
  - MODERATOR: Ian Witterick, MD, MSc, FRCSC

  The Three Minute Thesis competition will highlight ten of the top rated abstracts submitted to this year’s NASBS meeting. The presenters will also be giving a presentation in one of the proffered paper sessions. Each presenter will have a maximum of three minutes with one slide, and no props, sound, video, animation, costumes, poems or songs are permitted. Presentations will be judged by members of the NASBS Research Committee based on comprehension, content, engagement and communication. First, second and third prizes will be awarded.

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<th>Abstract Title</th>
<th>Authors</th>
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<tr>
<td><strong>T001</strong>: USE OF INTRAOPERATIVE INDOCYANINE GREEN ENDOSCOPY IN ASSESSMENT OF VASCULARITY OF INTRanasal Flaps</td>
<td>Ana Carolina Igami Nakassa, MD¹, Mathew N Geltzeiler, MD², Benita Valappil, MPH¹, Yue-Fang Chang, PhD³, Georgios A Zenonos, MD³, Eric W Wang, MD³, Juan C Fernandez-Miranda, MD³, Carl H Snyderman, MD², MBA⁴, Paul A Gardner, MD, ¹UPMC Center for Cranial Base Surgery, ²Department of Otolaryngology, University of Pittsburgh School of Medicine, ³Department of Neurosurgical Surgery, University of Pittsburgh School of Medicine</td>
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<td><strong>T002</strong>: LONG TERM OUTCOMES OF MANAGEMENT OF Olfactory Neuroblastoma: MD Anderson Experience</td>
<td>Ahmed S Abdelmeguid, MD, PhD¹, Watchareporn Teeramatwanich, MD¹, Dianna Roberts, PhD², Michael E Kupferman, MD¹, Shirley Y Su, MD¹, Shaan M Raza, MD², Franco DeMonte³, Ehab Y Hanna, MD¹, ¹Department of Head and Neck Surgery, The University of Texas MD Anderson Cancer Center, ²Department of Neurosurgery, The University of Texas MD Anderson Cancer Center</td>
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<td><strong>T003</strong>: Adenocarcinoma of the Sinonasal Tract: A Review of the National Cancer Database</td>
<td>Edward C Kuan, MD, MBA¹, Ryan M Carey, Alan D Workman, Charles C Tong, Michael A Kohanski, James N Palmer, Nithin D Adappa, Jason G Newman, Jason A Brant, University of Pennsylvania</td>
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<tr>
<td><strong>T004</strong>: Dural Invasion Predicts Neck Metastases in Esthesioneuroblastoma</td>
<td>John P Marinelli, BS¹, Jeffrey R Janus, MD², Jamie J van Gompel, MD³, Michael J Link, MD³, Michael E Van Abel, MD³, Brandon W Peck, MD⁴, Christine M Lohse, MS⁴, Daniel L Price, MD⁴, Mayo Clinic School of Medicine, ³Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester Minnesota, ¹Department of Neurosurgery, Mayo Clinic, Rochester MN</td>
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<tr>
<td><strong>T005</strong>: Tumor-Associated Macrophage Expression of PD-L1 Is Associated with Recurrence After Subtotal Resection of Vestibular Schwannoma</td>
<td>Avital Perry, Lucas P Carlstrom, Christopher S Grafeo, Aditya Raghunathan, Mark E Jentoft, Colin L Driscoll, Brian A Neff, Matthew L Carlson, Maria Peris Celda, Jamie J van Gompel, Michael J Link; Mayo Clinic</td>
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<td><strong>T006</strong>: A Single Institution Review of 84 WHO II Meningiomas, 38 Located in the Skullbase, Continues to Support Surgery as the Primary Treatment Modality</td>
<td>Philip D Tatman, BS¹, Joshua W Osbun, MD, Owais Ahmad, MD, Tina Busaid, Carolina Parada, PhD, Luis Gonzalez-Cuyar, MD, Donald Born, MD, PhD, Manuel Ferreira, MD, PhD, University of Washington</td>
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<td><strong>T007</strong>: A Prospective Outcomes Study of Proton Therapy for Skull-Base Chondrosarcomas</td>
<td>Adam L Holtzman, MD, Ronny L Rotondo, MD, CM, FRCP, Michael S Rutenberg, MD, PhD, Daniel J Indelicato, MD, Christopher G Morris, MS, William M Mendenhall, MD; University of Florida College of Medicine</td>
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<td><strong>T008</strong>: Selective Surgical Resection of the Medial Wall of the Cavernous Sinus for Invasive Pituitary Adenomas: Surgical Technique and Outcomes in 49 Patients</td>
<td>Salomon Cohen Cohen, MD¹, Edinson Najera MD¹, Ana Carolina Igami Nakassa MD¹, Huy Q Truong MD¹, Nathan T Zwagerman MD², Carl Snyderman MD², Eric Wang MD⁴, Paul Gardner MD⁴, Juan C Fernandez-Miranda MD², Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, ²Department of Neurological Surgery, University of Pittsburgh School of Medicine, ³Departments of Otolaryngology and Center for Cranial Base Surgery, University of Pittsburgh Medical Center, ⁴Departments of Neurological Surgery and Center for Cranial Base Surgery, University of Pittsburgh Medical Center</td>
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<td><strong>T009</strong>: Long Term Hearing Outcomes Following Stereotactic Radiosurgery in Patients With Vestibular Schwannomas</td>
<td>Peter L Santa Maria, MD, PhD¹, Yangyang Shi, BS², Richard K Gurgel, MD³, Carleton E Corrales, MD³, Scott G Soittys, MD³, Chloé Santa Maria¹, Steven D Chang², Nikolos H Blevins¹, Iris C Gibbs¹, Robert K Jackler¹, Department of Otolaryngology and Head and Neck Surgery, Stanford University, Palo Alto, CA, USA, ²Department of Otolaryngology-Head and Neck Surgery, University of Utah, Salt Lake City, UT, USA; ³Division of Otolaryngology-Head and Neck Surgery, Brigham and Women’s Hospital, Harvard Medical School, Boston, MA, USA, ⁴Department of Radiation Oncology, Stanford University, Palo Alto, CA, USA, ⁵Department of Neurosurgery, Stanford University</td>
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<td><strong>T010</strong>: Predictors of Recurrence After Gamma Knife Radiosurgery for Cavernous Sinus Meningiomas</td>
<td>Georgios A Zenonos, MD¹, A Chu, MD¹, A Niranjan, MD¹, P A Gardner, MD¹, J C Fernandez-Miranda, MD¹, J C Flickinger, MD², Edward Monaco III, MD, PhD¹, L D Lunsford, MD², University of Pittsburgh Medical Center, Departments of Neurosurgery, University of Pittsburgh, Department of Radiation Oncology</td>
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### Scientific Program

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<tr>
<th>Time</th>
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<td>10:50 am – 11:20 am</td>
<td><strong>KEYNOTE ADDRESS: Making Experience Payoff: Maximizing the Value of Mentoring</strong>&lt;br&gt;<strong>SPEAKER:</strong> David DeLong</td>
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<td>11:20 am – 11:40 am</td>
<td><strong>GUEST SPEAKER: Skull Base Surgery in the 21st Century</strong>&lt;br&gt;<strong>SPEAKER:</strong> Dan Fliss, MD</td>
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<td>11:40 am – 11:55 am</td>
<td><strong>GUEST SPEAKER: The Value of Networking in Career Development</strong>&lt;br&gt;<strong>SPEAKER:</strong> Robert Miller, MD, MBA</td>
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<td>11:55 am – 12:10 pm</td>
<td><strong>GUEST SPEAKER: There’s No I in TEAM: We Learn From Each Other</strong>&lt;br&gt;<strong>SPEAKER:</strong> Peter Neligan, MD</td>
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<td>12:10 pm – 12:15 pm</td>
<td><strong>Awards</strong>&lt;br&gt;<strong>PRESENTERS:</strong> Shaan Raza, MD, FAANS &amp; Anand Devaiah, MD</td>
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<td>12:15 pm – 1:15 pm</td>
<td><strong>Lunch in Exhibit Hall</strong></td>
<td>Exhibit Pavilion</td>
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<td>1:20 pm – 2:20 pm</td>
<td><strong>Resident/Fellow Jeopardy</strong></td>
<td>Commodore CDE</td>
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<td>1:20 pm – 2:20 pm</td>
<td><strong>HOT TOPIC SESSIONS</strong></td>
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<td><strong>HOT TOPIC 4: Intracranial Hypertension and Intracranial Pseudotumor</strong>&lt;br&gt;<strong>Commodore B</strong></td>
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<td><strong>MODERATORS:</strong> Tyler Kenning, MD &amp; Richard Murray, MD</td>
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<td><strong>SPEAKERS:</strong> Ramsey Ashour, MD; Claudia Kirsch, MD; Joshua Pasol, MD; Mark Eisenberg, MD; Babu Welch, MD</td>
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<td></td>
<td>• Etiology, Pathogenesis and Clinical Presentation - Ramsey Ashour, MD</td>
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<td>• Radiology and Imaging Findings – Claudia Kirsch, MD</td>
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<td>• Neuro-Ophthalmological findings and management – Joshua Pasol, MD</td>
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<td>• Medical and Non-Neurosurgical Management – Mark Eisenberg, MD</td>
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<td>• Neurosurgical Management – Venous Sinus Stenting and Shunting Procedures – Babu Welch, MD</td>
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<td>This session will focus on the etiology and pathogenesis, clinical presentation, and medical and surgical management of idiopathic or benign intracranial hypertension and intracranial pseudotumor.</td>
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<td>At the conclusion of this session, participants will be able to:</td>
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<td>1. Categorize the pathogenesis and clinical manifestations of benign intracranial hypertension.</td>
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<td>2. Select the best diagnostic tests and medical management for this condition.</td>
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<td>3. Apply the optimal surgical strategy with an understanding of the risks and benefits.</td>
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<td><strong>HOT TOPIC 5: Value Based Healthcare in Skull Base Surgery</strong>&lt;br&gt;<strong>Commodore A</strong></td>
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<td><strong>MODERATORS:</strong> Erin McKean, MD, MBA &amp; Jarrett Walsh, MD, PhD</td>
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<td><strong>SPEAKERS:</strong> Lawrence Marentette, MD; Ehab Hanna, MD; Marvin Bergsneider, MD; Carl Snyderman, MD, MBA; Varun Kshettry, MD; Perry Mansfield, MD; Neil Martin, MD</td>
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<td></td>
<td>• Introduction – Erin McKean, MD, MBA</td>
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<td>• What is Value-Based Care? – Lawrence Marentette, MD</td>
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<td>• Outcome Measurement: Why, What, and How? – Ehab Hanna, MD</td>
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<td>• Value-Based Care in Pituitary Surgery – Marvin Bergsneider, MD</td>
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<td>• Relationship of Volume and Outcomes – Carl Snyderman, MD, MBA</td>
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<td>• Cost: the Ugly Denominator, Grass Root Efforts, and National Implications – Varun Kshettry, MD</td>
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<td>• Optimizing Skull Base Patient Revenue Cycle – Perry Mansfield, MD</td>
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<td>• Value-Based Surgical Redesign – NERVS (Neurosurgery With Enhanced Recovery, Value, And Safety) – Neil Martin, MD</td>
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<td>• Conclusion and Q&amp;A – Jarrett Walsh, MD, PhD</td>
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<td>This session will introduce the topic of value-based care in skull base surgery, define current outcomes measures and the relationship of surgical costs, volumes and outcomes. This topic is important and timely for all members, especially when attempting to define measures for quality and outcomes as a multispeciality society.</td>
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<td>At the conclusion of this session, participants will be able to:</td>
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<td>1. Evaluate value, cost and quality and their impact in skull base surgery.</td>
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<td>2. Identify and contribute to identification of new value-based metrics and recommendations in a multidisciplinary society.</td>
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<td>3. Discuss how healthcare policy may impact the future of value-based care.</td>
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HOT TOPIC 6: Cerebrovascular Surgery & Skull Base Surgery: The Perfect Match

MODERATORS: Daniel Barrow, MD & Bernard Bendok, MD

SPEAKERS: Luca Regli, MD; Ali Krisht, MD; Michael Lawton, MD; David Langer, MD; Basant Misra, MD; Rokuya Tanikawa, MD, PhD; Jacques Morcos, MD, FRCS, FAANS

• Introduction – Daniel Barrow, MD & Bernard Bendok, MD
• Transcavernous Approach to the Rostral Basilar Artery – Ali Krisht, MD
• Giant Basilar Aneurysm – Basant Misra, MD
• Combined Supra- and Infratentorial Petrosal for Lower Basilar Aneurysms – Rokuya Tanikawa, MD, PhD
• Transcavernous and Far Lateral for Cavernous Malformations – Jacques Morcos, MD, FRCS, FAANS
• Role & Indications for Bypass Today – Luca Regli, MD
• V3 Vertebral Artery for Bypass – Michael Lawton, MD
• Use Of Internal Maxillary Artery for Bypass – David Langer, MD

This session will discuss a variety of skull base approaches used for vascular neurosurgical procedures. The idea is to emphasize the value of skull base techniques to access and address complicated cerebrovascular disorders.

At the conclusion of this session, participants will be able to:
1. Recognize the value of incorporating skull base techniques in their practice.
2. Better predict when a skull base approach will improve outcomes.

2:25 pm – 3:25 pm   VIDEO SESSIONS

VIDEO SESSION 4: Neurosurgery Open Anterior Skull Base Procedures

MODERATORS: Norberto Andaluz, MD & Carl Heilman, MD

SPEAKERS: Daniel Roy, MD; Maurizio Iacoangeli, MD; Ivan Radovanovic, MD, PhD; Gerald Lemole Jr, MD; Jose Landeiro, MD, PhD; Kesava Reddy, MBBS, FRCSC

• Clinoidal Meningiomas – Daniel Roy, MD
• Minimally Invasive Keyhole Surgery for Anterior Skull-Base and Orbital Lesions: Bridging the Gap Between Open and Endoscopic Procedures – Maurizio Iacoangeli, MD
• Modified Lateral Supraorbital Approach to the Cavernous Sinus and Extradural Anterior Clinoidectomy for Clipping of a Clinoidal Segment Transitional Aneurysm – Ivan Radovanovic, MD, PhD
• Combined Approaches for Anterior Skull Base Malignancy – Gerald Lemole Jr, MD
• Cavernous Sinus Tumors – Jose Landeiro, MD, PhD
• Meningiomas in the Anterior Cranial Fossa – Kesava Reddy, MBBS, FRCSC

This video session will showcase presentations from accomplished skull base surgeons presenting on their techniques for the approach of challenging lesions of the anterior skull base. This session should be of interest to all skull base surgeons interested in learning different techniques for the approach of anterior skull base lesions.

At the conclusion of this session, participants will be able to:
1. Discuss different techniques for the approach of anterior skull base lesions.
2. Present modern combined techniques for the approach of anterior skull base lesions.
3. Discuss modifications to standard approaches to anterior skull base lesions.
VIDEO SESSION 5: Neurosurgery Open Lateral Skull Base Approaches

MODERATORS: Bharat Guthikonda, MD & Jason Ellis, MD

SPEAKERS: Laligam Sekhar, MD, FACS, FAANS; John YK Lee, MD; Elisabetta Zanoletti, MD; Paul Camarata, MD; Marc Schwartz, MD; Keki Turel, MBBS, MS

- Introduction – Bharat Guthikonda, MD
- Extreme Lateral Approach – Laligam Sekhar, MD, FACS, FAANS
- Endoscopic Retrosigmoid Craniotomy with Suprameatal Extension – John YK Lee, MD
- Retrosigmoid Approach with Retrolabyrinthine Meatotomy in Hearing Preservation Surgery for Acoustics – Elisabetta Zanoletti, MD
- Far Lateral Approach for Lateral Skull Base Lesions – Paul Camarata, MD
- Transtympanic Approach to the Lateral Skull Base – Marc Schwartz, MD
- Middle Fossa/Anterior Petrosal Approach to the Lateral Skull Base – Keki Turel, MBBS, MS
- Discussion/Conclusions – Bharat Guthikonda, MD

This session will be a comprehensive video journey through lateral skull base surgery as described through the experiences of experts in skull base neurosurgery and neuro-otology. We encourage all registered participants to attend this session.

At the conclusion of this session, participants will be able to:
1. Recognize which approaches will be best suited for neoplastic and vascular lesions of the lateral skull base.
2. Develop intraoperative technical skills that allow better management of the eloquent structures of the lateral skull base.
3. Recognize how best to avoid complications in lateral skull base surgery.

VIDEO SESSION 6: Neurosurgery Expanded Endoscopic Endonasal Procedures

MODERATORS: Gary Gallia, MD, PhD & Seth Lieberman, MD

SPEAKERS: Amin Kassam, MD; Eric Monteiro, MD; Fred Gentili, MD, MSc, FRCSC, FACS; John Craig, MD; Jose Gurrola, MD; James Evans, MD; Paul Gardner, MD

In this session, surgeons will illustrate techniques and indications of expanded endoscopic endonasal approaches to the skull base.

- Ventral Neural Road Map: A 360-degree Anatomic and Radiologic Tour of the Neural Network via the Expanded Endonasal Approach – Amin Kassam, MD
- The Transpterygoid Approach to the Lateral Sphenoid Recess – Eric Monteiro, MD
- Chordoma – The Advantages of the Endoscopic Approach – Fred Gentili, MD, MSc, FRCSC, FACS
- Endoscopic Repair of CSF Leaks – John Craig, MD
- Endoscopic Assisted ASB Resection with Pericranial Flap – Jose Gurrola, MD
- Neurosurgery Expanded Endoscopic Endonasal Procedures – James Evans, MD
- Extreme EEA, What Are the Limits? – Paul Gardner, MD

At the conclusion of this session, participants will be able to:
1. Convey the indications for the expanded endonasal approach to treat ventral skull base pathology.
2. Develop an algorithm for utilization and selection of an endoscopic endonasal approach.
3. Articulate the limitations of the endoscopic endonasal approach.
Scientific Program

2:25 pm - 3:25 pm  SPECIAL SESSIONS

SPECIAL SESSION 4: Certification of the Skull Base Surgeon  Commodore CDE
MODERATORS: Carl Snyderman, MD, MBA & Ian Witterick, MD, MSc, FRCSC
SPEAKERS: Richard Friedman, MD, PhD; Tom Roland, MD; Robert Behr, MD, PhD; Jacques Morcos, MD, FRCS, FAANS; Daniel Kelly, MD
• Introduction – Ian Witterick, MD, MSc, FRCSC
• Credentialing Issues: Perspectives of Stakeholders – Richard Friedman, MD, PhD
• What is a Skull Base Surgeon? Otolaryngological Perspective – Tom Roland, MD
• What is a Skull Base Surgeon? Neurosurgical Perspective – Robert Behr, MD, PhD
• Measures of Proficiency – Jacques Morcos, MD, FRCS, FAANS
• Centers of Excellence: Is It Time? – Daniel Kelly, MD
This session will address issues that are important for the credentialing and certification of skull base surgeons at all types of institutions. This topic is important for skull base surgeons at all stages of their careers.
At the conclusion of this session, participants will be able to:
1. Identify key issues for credentialing of skull base surgeons.
2. Prioritize credentialing issues.
3. Formulate current best practices.

1:20 pm - 3:25 pm  RHOTON ROOM  Constellation AB

RHOTON ANATOMY: 3D Anatomy of Petrous Bone, Semicircular Canal, Facial Canal, CP Angle Through both the Presigmoid and Retrosigmoid Approach  SPEAKER: Maria Peris-Celda, MD, PhD
RADIOLOGY  SPEAKER: Eugene Yu, MD
DUELING DISSECTIONS: Medial Maxillectomy, Pterygoid Fossa Exposure, V2 Nerve Dissection To Rotundum, V3 Nerve Identification, Transpterygoid Plate, Carotid Artery Identification  MODERATOR: Allan Vescan, MD
PARTICIPANTS: Clementino Solares, MD/Daniel Cox, MD & Shirley Su, MD/Ivan El-Sayed, MD

3:30 pm - 4:15 pm  Afternoon Break in Exhibit Hall  Exhibit Pavilion

4:15 pm - 6:15 pm  PROFFERED PAPERS SESSION  Commodore CDE

PROFFERED PAPERS 7: Spheno-Orbital, Petro-Clival, Cavernous Sinus Meningiomas (one hour only, 4:15 pm - 5:15 pm)

075: ANTERIOR CLINOID LINE: A PREDICTOR FOR OPERATIVE OUTCOME OF MEDIAL SPHENOID WING MENINGIOMAS – Ala Arab, Aysha Hawsawi, Mohammed Bafaqh, MD, Yasser Orz, MD, PhD, Mahmoud AlYamany, Abdullah Al Obaid, King Abdulaziz Medical City, 2AlMaarefa Colleges, 3King Fahad Medical City

076: INDIVIDUALIZED MANAGEMENT STRATEGY OF PETROCLIVAL MENINGIOMAS BASED ON A RADIOGRAPHIC CLASSIFICATION – Zhen Wu, MD, Da Li, Li-Wei Zhang, Jun-Ting Zhang; Beijing Tiantan Hospital, Capital Medical University

077: PREDICTORS OF RECURRENCE AFTER GAMMA KNIFE RADIOSURGERY FOR CAVERNOUS SINUS MENINGIOMAS – Georngos A Zenonos, MD, A Chu, MD, A Niranjan, MD, P A Gardner, MD, J C Fernandez-Miranda, MD, J C Flickinger, MD, Edward Monaco III, MD, PhD, L D Lunsford, MD; University of Pittsburgh Medical Center, Department of Neurosurgery, 1University of Pittsburgh, Department of Radiation Oncology

078: PETROUS FACE MENINGIOMAS: CLASSIFICATION, PRESENTATION SYNDROMES AND SURGICAL OUTCOMES – Stephen T Magill, MD, PhD, Jonathan W Rick, BS, William Chen, BS, David Haase, BS, Manish K Aghi, MD, PhD, Philip Theodosopoulos, MD, Michael W McDermott, MD; University of California, San Francisco

079: RESECTION OF SPHENO-ORBITAL MENINGIOMAS: VISUAL OUTCOMES FROM A MODERN COHORT – Vijay Agarwal, MD, Nealey Cray, Andrea A Tooley, Olivia Crum, MD, Pradeep Mettu, MD, James Garrity, MD, Michael J Link, MD; Emory University Hospital, 2Mayo Clinic, 3Raleigh Ophthalmology
080: CYBERKNIFE RADIOSURGERY FOR ACOUSTIC NEUROMAS: TUMOR CONTROL AND CLINICAL OUTCOMES - Colin J Przybylewski, MD1, Jacob F Baranoski, MD1, Gabriella Pasion, BS1, Kristina M Chapple, PhD1, Andrew Meuesen, BS1, Stephen Sorenson, PhD1, Kaith Almety, MD1, Randall Porter, MD1; 1Barrow Neurologic Institute, 2University of Virginia School of Medicine

081: RECURRENCE OF VESTIBULAR SCHWANNOMA AFTER SUBTOTAL AND NEAR TOTAL RESECTION - Ben A. Strickland1, Ksenia Aaron, MD2, Jonathan J Russin, MD1, Richard Friedman, MD2, Steven L Giannotta, MD1; 1University of Southern California, Department of Neurosurgery, 2University of Southern California, Department of Otolaryngology

082: FACIAL NERVE OUTCOMES FOLLOWING ADJUVANT GAMMA-KNIFE RADIOSURGERY FOR SUBTOTALY RESECTED VESTIBULAR SCHWANNOMAS: IMMEDIATE VERSUS DELAYED TIMING OF THERAPY - Robert Heller, MD, Isaac Ng, Carl Heilman, MD, Julian Wu, MD; Tufts Medical Center

083: CONSERVATIVE MANAGEMENT OF SMALL ACOUSTIC NEUROMAS: COMPLIANCE RATES AND OUTCOMES OVER 5 YEARS AT A SINGLE INSTITUTION - Galit Almosnino, MD, Daniel M Zeitler, MD, FACS; Virginia Mason Medical Center, Department of Otolaryngology/Head and Neck Surgery

084: RECONSIDERING THE MANDATE FOR SIX-MONTH POST-RADIOSURGERY MRI IN THE TREATMENT OF VESTIBULAR SCHWANNOMA: CLINICAL REVIEW AND COST ANALYSIS - Avital Perry2, Christopher S Graffeo, Lucas P Carlstrom, Joshua D Hughes, Maria Peris Celda, Bruce E Pollock, Michael J Link; Mayo Clinic

085: UTILITY OF NON-CONTRAST MAGNETIC RESONANCE IMAGING FOR DETECTION OF RECURRENT VESTIBULAR SCHWANNOMA - Christoph M Prummer1, Williams C Jamie2, Carrie M Carr1, Laurence J Eckel1, Amy L Kotsensas1, Christopher H Hunt2, John I Lane2, Matthew L Carlson1; 1Mayo Clinic Rochester- Department of Otorhinolaryngology, 2Mayo Clinic Rochester- Department of Radiology

086: DURATION AND TIMING OF TRANSIENT TUMOR ENLARGEMENT AFTER GAMMA-KNIFE RADIOSURGERY FOR VESTIBULAR SCHWANNOMA - Jonathan D Breshears, MD, Joseph Chang, MD, Annette Molinaro, PhD, Penny Sneed, MD, Michael W Mc Dermott, Aaron Tward, MD, PhD, Philip V Theodosopoulos; University of California, San Francisco

087: FACIAL NERVE OUTCOME AND EXTENT OF RESECTION IN CYSTIC VERSUS SOLID VESTIBULAR SCHWANNOMAS IN RADIOSURGERY ERA: IS NEAR-PERFECT POSSIBLE? - Pinar Eser Ocak, MD1, Ihsan Dogan, MD1, Umut Ocak, MD1, Cem Dinc, MD1, Sam Gubbels, MD2, Mark Pyle1, Mustafa Kemal Baskaya, MD1; 1University of Wisconsin, 2University of Colorado

088: CONTRAST ENHANCED CISS MRI IMPROVES VISUALISATION AND PLANNING IN VESTIBULAR SCHWANNOMAS - Cordula Matthies, Prof, MD, PhD1, Nadine Lilla, MD1, Kathrin Engel1, Maria Hummel1, Robert Nickl1, Laszlo Solymosi, Prof, MD, PhD2, Ralf-Ingo Ernestus, Prof, MD, PhD2; 1Department of Neurosurgery, Wuerzburg University Hospital, 2Center of Neuroradiology, Wuerzburg University Hospital

089: HYDROCEPHALUS IN PATIENTS WITH VESTIBULAR SCHWANNOMA: INSTITUTIONAL EXPERIENCE WITH TEMPORARY AND PERMANENT CSF DIVERSION - Joshua Hughes, MD, Christopher Graffeo, Avital Perry, MD, Lucas Carlstrom, MD, Christopher Marcellino, MD, Jamie J van Gompel, MD, Brian Neff, Matthew Carlson, MD, Colin Driscoll, MD, Michael J Link, MD; Mayo Clinic Rochester MN

090: FACIAL NERVE ELONGATION IN VESTIBULAR SCHWANNOMAS: A USEFUL ASPECT WITH REGARD TO FUNCTIONAL PRESERVATION - Cordula Matthies, Prof, MD, PhD1, Nadine Lilla, MD1, Robert Nickl, MD1, Maria Hummel, MD1, Laszlo Solymosi, Prof, MD, PhD2, Ralf-Ingo Ernestus, Prof, MD, PhD2; 1Department of Neurosurgery, Wuerzburg University Hospital, 2Center of Neuroradiology, Wuerzburg University Hospital

091: MODERN MANAGEMENT OF LARGE VESTIBULAR SCHWANNOMAS - Cormac G Gavin, FRCSI, FRCSSN, Greta Brezgyte, BSc, MSc, Howard I Sabin, BMSC, FRCSE, FRCS; St. Bartholomew’s Hospital

092: TUMOR-ASSOCIATED MACROPHAGE EXPRESSION OF PD-L1 IS ASSOCIATED WITH RECURRENCE AFTER SUBTOTAL RESECTION OF VESTIBULAR SCHWANNOMA - Avital Perry, Lucas P Carlstrom, Christopher S Graffeo, Aditya Raghunathan, Mark E Jen toft, Colin L Driscoll, Brian A Neff, Matthew L Carlson, Maria Peris Celda, Jamie J van Gompel, Michael J Link; Mayo Clinic

093: SURGERY OF VESTIBULAR SCHWANNOMAS IN THE ERA OF WITH GAMMA-KNIFE RADIOSURGERY: A TWO-CENTERS COMPARATIVE STUDY WITH 702 CASES - Marcos Tatagiba, MD, PhD; Department of Neurosurgery, University Hospital Tuebingen, Germany
Scientific Program

PROFFERED PAPERS 9: Non-Sinonasal H&N Tumors

094: THE NATURAL HISTORY OF FACIAL SCHWANNOMAS: A META-ANALYSIS OF CASE SERIES – John P Leonetti, MD, Matthew R Bartindale, MD, Jeffrey Heiferman, Cara Joyce, PhD, Neelam Balasubramanian; Loyola University Medical Center

095: INDIVIDUAL DESIGNED APPROACHES AND MICROSURGERY FOR HUGE PETROUS BONE-INVASIVE TUMORS: REPORT OF 57 CASES – Xuesong Liu; West China Hospital

096: CLINICAL AND PATHOLOGICAL PARAMETERS PROGNOSTIC IN TEMPORAL BONE RESECTION FOR LOCALLY ADVANCED MALIGNANT PAROTID TUMOR – Livia S Dechen, Ronaldo N Toledo, Jose Ricardo G Testa, Genival B Carvalho, Luiz P Kowalski; A.C.Camargo Center

098: CXCR4 AND PD-1 EXPRESSION IN HEAD AND NECK CANCER WITH PERINEURAL SPREAD – Catherine Barnett, BSc, MSc, MPhil, MBBS, Ryan Sommerville, BSc, MBBS, FRACS, Charles Lin, MBBS, FRANZCR, Brett Hughes, MBBS, FRACP, Touraj Taheri, MBBS, FRCPA; Royal Brisbane and Women’s Hospital, Brisbane, QLD, Australia

099: CLINICAL PROGNOSTIC VALUE OF THE ISOCITRATE DEHYDROGENASE 1 SINGLE-NUCLEOTIDE POLYMORPHISM RS11554137 IN GliOBLASToma – Akshitkumar Mistry, MD, Cindy Vencak-Jones, PhD, Bret Mobley, MD; Vanderbilt University Medical Center

100: GIANT VERTEBRO-BASILAR DISSECTION ANEURYSM AND DOLICHOECTASIA BYPASS TREATMENT – Xiao Guang Tong, Guang Tong, MD, PhD; Tian Jin Huan Hu Hospital

101: RE-IRRADIATION OF SMALL SKULL BASE TUMORS: A COMPARISON OF PATIENT OUTCOMES AFTER STEREOTACTIC BODY RADIOTHERAPY (SBRT), INTENSITY MODULATED RADIOTHERAPY (IMRT) AND PROTON THERAPY (PRT) – Sweet Ping Ng, MBBS, He Wang, PhD, Clifton D Fuller, MD, PhD, G Brandon Gunn, MD, Adam S Garden, MD, William Morrison, MD, Shalin Shah, MD, Ehab Hanna, MD, Shirley Su, MBBS, David Rosenthal, MD, Steven J Frank, MD, Jack Phan, MD, PhD; The University of Texas MD Anderson Cancer Center

102: GLOMUS VAGALE OF THE PARAPHARYNGEAL SPACE: WORKING TOWARDS A SIMPLIFIED TREATMENT PARADIGM – Avital Perry, Christopher S Graffeo, Lucas P Carlstrom, Christopher M Low, Maria Peris Celda, Eric J Moore, Michael J Link, Kathryn M Van Abel; Mayo Clinic

103: PATIENT SURVIVAL AFTER TEMPORAL BONE RESECTION FOR MALIGNANCY – Anne C Kane, Rahul Mehta, Assistant Professor; Moises Arriaga, Clinical Professor; Anna Pou, Professor and Administrative Vice Chair, Michael DiLeo, Clinical Assistant Professor; Rohan Walvekar, Associate Professor, Daniel Nuss, Professor and Chairman; Leslie Son, PhD; LSUHSC New Orleans, 1Our Lady of the Lake Regional Medical Center

104: EXPANDED ENDonasAL APPROACHES FOR SKULL BASES LESIONS IN THE VERY YOUNG: IS IT SAFE AND EFFECTIVE? – Javan Nation, MD, Alexander Schupper, MD, Adam Deconde, MD, Michael Levy, MD; UCSD/Rady Children’s Hospital San Diego, 1UCSD school of medicine, 1UCSD

105: PATHOLOGICAL FINDINGS IN RETROPHARYNGEAL NODES REMOVED DURING TRANSORAL ROBOTIC SURGERY FOR OROPHARYNGEAL CARCINOMA – Christopher H Rassekh, MD, Bert W O’Malley, Jr., MD, Ellie Paul, Jason A Brant, MD, Gregory S Weinstein, MD, University of Pennsylvania

106: ADVANCES IN THE MANAGEMENT OF SKULL BASE AND CAROTID PARAGANGLIOMAS – Khalid Chowdhury, MD, MBA, FRCS, Robert Muckle, MD, Roderick Lamond, MD; Center for Craniofacial Disorders & University of Colorado Health Sciences Center, 1Denver Ear Associates, 1Denver Neurosurgery and Spine

PROFFERED PAPERS 10: Quality of Life

107: REVISION MICROVASCULAR DECOMPRESSON FOR TRIGEMINAL NEURALGIA AND HEMIFACIAL SPASM: RISK FACTORS FOR SURGICAL FAILURE – Ben A Strickland, MD, Joshua Bakhsheshian, MD, Vance L Fredrickson, Steven L Giannotta, MD; University of Southern California Department of Neurosurgery

108: AGE AND GENDER EFFECTS ON THE REPAIR OF SUPERIOR SEMICIRCULAR CANAL DEHISCENCE THROUGH MIDDLE CRANIAL FOSSA APPROACH – Yasmine Alkhalid, BS, Thien Nguyen, BS, Courtney Duong, BS, John P Sheppard, MS, Prasanth Romiyo, BS, Daniel Azzam, BS, Quinton Gopen, MD, Isaac Yang, MD; David Geffen School of Medicine of the University of California, Los Angeles

109: THIRTY-DAY POSTOPERATIVE EMERGENCY DEPARTMENT UTILIZATION AND HOSPITAL READMISSION AFTER 559 SEQUENTIAL ENDonasAL OPERATIONS – Douglas Hardesty, MD, Michael Mooney, MD, Chesney S Oravec, BA, Gabriella M Paisan, BA, Morteza Sadeh, MS, Michael Bohl, MD, John P Sheehy, MD, Andrew S Little, MD; Barrow Neurological Institute

110: ANALYSIS OF OTOLOGIC DRILL ENTANGLEMENT USING SLOW MOTION VIDEOGRAPHY – Matthew M Dedmon, MD, PhD, Robert J Yawn, MD, Brendan P O’Connell, MD, Matthew R O’Malley, MD, Marc L Bennett, MD; ‘Vanderbilt, ‘UNC-Chapel Hill
112: EXTENDED ENDOSCOPIC ENDONASAL APPROACH WITH OR WITHOUT C1-C2 ANTERIOR ENDOSCOPIC SCREW FIXATION FOR CRANIO-VERTEBRAL JUNCTION LESIONS: LESSON LEARNED AND TECHNICAL NUANCES – Maurizio Iacoangeli, MD1, Lucia Giovanna Maria Di Somma, MD1, Massimo Re, MD2, Davide Nasi, MD1, Alessandro Di Rienzo1, Roberta Benigni1, Nicola Specchia, MD1, Massimo Scerrati, MD1; 1Department of Neurosurgery, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy, 2Department of EN, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy, 3Department of Orthopedic, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy

113: OUTCOMES AND TECHNIQUE FOR PALLIATIVE ORBITAL AND OPTIC NERVE DECOMPRESSION – Kyle K VanKoevering, Raymond Cho, Ricardo L Carrau, Daniel Prevedello; Ohio State University

114: OUR EXPERIENCES WITH PROPHYLAXIS OF POSTOPERATIVE THROMBEMBOLIC COMPLICATIONS – Jan Hemza, MD, PhD, PhD, MPA; Dpt. of Neurosurgery, Faculty Hospital about saint Ann

115: ENDOSCOPIC APPROACH TO PETROUS APEX: CLINICAL SERIES – Matias Gomez G., MD1, Cristian Naudy1, Homero Sariego1, Katherine Walker1, Ricardo Carrau, MD2, David W Jang, MD, Randall Ruffner, MD, Douglas E Custer, MD1; 1Department of Otolaryngology, University of Pittsburgh School of Medicine, 2Department of Neurosurgery, University of Pittsburgh School of Medicine

116: INCIDENCE OF EMPTY NOSE SYNDROME FOLLOWING ENDOSCOPIC ENDONASAL SKULL BASE SURGERY: A PRELIMINARY TRIAL – Guillermo Maza, MD1, Juan C Yanez-Siller, MD, MPH1, Somasundaram Subramaniam, MD1, Bradley A Otto, MD, Prevedello M Daniel, MD2, Ricardo L Carrau, MD, FACS1; 1Department of Otolaryngology, Ohio State University, 2Department of Neurosurgery, Ohio State University

117: REPERCUSSION OF PRESERVATION OF BILATERAL MIDDLE TURBINATES DURING PITUITARY SURGERY ON MAXILLARY, ETHMOID AND FRONTAL SINUSES – Hamid Homero Sariego, MD1, Roberto Scagnelli, BA2, Tyler Kenning, MD3, Carlos Pinheiro-Neto, MD, PhD; 1Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, New York, 2Albany Medical School, 3Department of Neurosurgery, Albany Medical Center, Albany, NY

118: TRANSCRANIAL ORBITAL DECOMPRESSION AS A SALVAGE PROCEDURE FOR GRAVES’ OPHTHALMOPATHY: A 26 YEAR EXPERIENCE – Vijay Agarwal, MD1, Pradeep Mettu, MD2, Benjamin Himes, MD3, James Garrity, MD1, Michael J Link, MD3; 1Princeton Ophthalmology Associates, 2Albany Medical Center, 3Emory University Hospital


120: SINONASAL QUALITY OF LIFE OUTCOMES AFTER EXTENDED ENDONASAL APPROACHES TO THE SKULL BASE – Kevin J Choi, MD, MS1, FerasAckall, MD2, Tracy Truong, MS3, Ali R Zomorodi, MD1, Patrick J Codd, MD, Peter E Fecci, MD, PhD2, Ralph Abi Hachem, MD, MSc1, David W Jang, MD1; 1Duke University Medical Center, 2Duke University School of Medicine

PROFFERED PAPERS 11: Innovative Techniques

121: BONE METABOLIC MARKERS IN THE CLINICAL ASSESSMENT OF PATIENTS WITH SUPERIOR SEMICIRCULAR CANAL DEHISCENCE TREATED WITH MIDDLE FOSSA CRANIOTOMY – Thien P Nguyen, BS1, Carlito Lagman, MD1, John P Sheppard, MS1, Courtney Duong, BS1, Vera Ong1, Yasmeen Alkhaliad, BS2, Prasanth Romiyo, BS1, Daniel Azzam, BS4, Gijyarpuram Prashant, MD1, Quinton Gopen, MD1, Isaac Yang, MD1; 1University of California Los Angeles, 2Medical College of Georgia, 3Cooper Medical School of Rowan University, 4University of California Irvine

122: SUPERIOR PETROSAL VEIN SACRIFICE DURING MICROVASCULAR DECOMPRESSION – Gavin W Britz, Professor; Brandon Liebelt, Sean Barber; Houston Methodist

123: EXTENDED MIDDLE FOSSA APPROACH TO LATERALIZED PONTINE CAVERNOMAS IN CHILDREN – Robert Rennert, Reid Hoshide, Mark Calayag, Michael Levy; UC-San Diego

124: USE OF INTRAOPERATIVE INDOCYANINE GREEN ENDOSCOPY IN ASSESSMENT OF VASCULARITY OF INTRANASAL FLAPS – Ana Carolina Igami Nakassa, MD1, Mathew N Geltzeiler, MD2, Benita Valappil, MPH1, Yue-Fang Chang, PhD1, Georgios A Zenonos, MD1, Eric W Wang, MD2, Juan C Fernandez-Miranda, MD1, Carl H Snyderman, MD, MBA2, Paul A Gardner, MD1; 1UPMC Center for Cranial Base Surgery, 2Department of Otolaryngology, University of Pittsburgh School of Medicine, 3Department of Neurological Surgery, University of Pittsburgh School of Medicine
125: MINIMALLY INVASIVE APPROACHES FOR OPTIC NERVE DECOMPRESSION: COMPARISON BETWEEN EEA AND ENDOSCOPIC-ASSISTED TRANSORBITAL TRANSCONJUNCTIVAL APPROACH – Mostafa Shahein, MD, Juan Manuel M Revuelta Barbero, MD, Alaia Montaser, MD, Bradley A Otto, Carrau L Ricardo, MD, Daniel M Prevedello, MD; Ohio State University

126: PRELIMINARY SINGLE CENTER EXPERIENCE WITH THE USE OF ICG IN ENDOSCOPIC SKULL BASE SURGERY: NEW FINDINGS AND PROPOSED INDICATIONS – Mostafa Shahein, MD, Thomas Beaumont, MD, Carrau L Ricardo, MD; Bradley A Otto, Daniel M Prevedello; Department of Neurological Surgery, Wexner Medical Center, The Ohio State University College of Medicine, Department of Otalaryngology-Head and Neck Surgery, Wexner Medical Center, The Ohio State University College of Medicine

127: A MODULAR APPROACH FOR ACCESSING SKULL BASE PATHOLOGY USING SUBCORTICAL WHITE MATTER TRACTS AS A FRAMEWORK: THE VENTRAL ANTEROMEDIAL APPROACH – Srikant Chakravarthi, MD, Alejandro Monroy-Sosa, MD, Melanie Fukui, MD, Lior Gonen, MD, Juanita Celix, MD, Jonathan Jennings, MD, Richard Rovin, MD, Amin Kassam, MD; Aurora Neuroscience Innovation Institute

PROFFERED PAPERS 12: Pituitary Adenomas

128: IMMEDIATE AND DELAYED POSTOPERATIVE MORBIDITY IN PITUITARY ADENOMAS – Laura Salgado-López, MD, Fernando Muñoz, MD, PhD, Carlos Asencio, MD, Père Tresserras, MD, PhD; Hospital de la Santa Creu i Sant Pau, Barcelona, Spain.

129: FUNCTIONAL VS. NONFUNCTIONAL PITUITARY ADENOMAS: A REVIEW OF SURGICAL OUTCOMES – David W Hsu, MD, Karam Badran, MD, Carmen Chan, Marvin Bergsneider, MD, Marilene Wang, MD; UCLA

130: VISUAL FIELD OUTCOME REPORTING IN NEUROSURGERY: LESSONS LEARNED FROM A PROSPECTIVE, MULTICENTER STUDY IN TRANSSPHENOIDAL PITUITARY SURGERY – Michael A Mooney, MD, Angela Herro, MD, Robert Fintelman, MD, Heidi Jahnke, RN, MSN, Marc Mayberg, MD, Garni Barkhoudarian, MD, Daniel Prevedello, MD, Michael Chicoine, MD, Daniel Kelly, MD, Paul Gardner, MD, James Chandler, MD, William White, MD, Andrew S Little, MD; Barrow Neurological Institute, Horizon Eye Specialists, Biitmore Eye Physicians, University of Washington School of Medicine, Pacific Brain Tumor Center and Pituitary Disorders Program, The Ohio State University, Washington University School of Medicine, University of Pittsburgh School of Medicine, Northwestern University Feinberg School of Medicine

131: A SYSTEMATIC REVIEW OF THE PROPHYLACTIC ANTIBIOTIC USE IN ENDOSCOPIC ENDONASAL TRANSSPHENOIDAL SURGERY FOR PITUITARY LESIONS – Ioana D Moldovan, MD, MSc, Charles Agbi, MB, BS, FRCS, FRSCEd, SN, FRCSC, Shaun J Kilty, MD, FRCSC, Fahad Alkherayf, MD, MSc, CIP, FRCSC; The Ottawa Hospital/The Ottawa Hospital Research Institute, The Ottawa Hospital/University of Ottawa/The Ottawa Hospital Research Institute

132: TUMOR RESECTABILITY AND RECURRENCE FOLLOWING ENDOSCOPIC ENDO Nasal TRANSSPHENOIDAL PITUITARY ADENOMA SURGERY: AN SINGLE INSTITUTION EXPERIENCE – Mohammad Alshardan, MD, Fahad Alkherayf, MD, MSc, Andrea Lasso, MSc, Sepideh Mohajeri, Pourya Masoudian, Andre Lamothe, MD, Charles Agbi, MD, Lisa Caudley, MD, MSc, Fatmahalzahra Banaz, MD, Shaun Kilty, MD; The University of Ottawa

133: PITUITARY APoplexy: MANAGEMENT IN A SPECIALIZED PITUITARY CENTER – João Paulo Almeida, MD, Miguel Marigil Sanchez, MD, PhD, Claire Karekezi, MD, Farshad Nassiri, MD, Sughant Suppiah, Mohammed Isteak Ali, MD, Mark Wilson, MD, Allan Vescan, MD, Ian Witterick, MD, Walter Kucharczyk, MD, Fred Gentili, MD, Gelareh Zadeh, MD, PhD; University of Toronto

134: FRAILTY IS ASSOCIATED WITH WORSE SHORT-TERM OUTCOMES IN PATIENTS UNDERGOING TRANSSPHENOIDAL RESECTION OF PITUITARY TUMORS – Anthony O Asemota, MD, MPH, Gary L Gallia, MD, PhD; Johns Hopkins Department of Neurosurgery

135: WHY PATIENTS UNDERGO ENDOSCOPIC ENDO Nasal TRANSSPHENOIDAL PITUITARY ADENOMA SURGERY: CHARACTERISATION OF A LARGE NORTH AMERICAN PATIENT POPULATION – Fatmahalzahra Banaz, MD, Fahad Alkherayf, MD, MSc, Andrea Lasso, MSc, Sepideh Mohajeri, Pourya Masoudian, Andre Lamothe, MD, Charles Agbi, MD, Lisa Caudley, MD, MSc, Mohammad Alshardan, MD, Shaun Kilty, MD; University of Ottawa

136: SELECTIVE SURGICAL RESECTION OF THE MEDIAL WALL OF THE Cavernous Sinus for INVasive Pituitary Adenomas: SURGICAL TECHNIQUE AND OUTCOMES IN 49 PATIENTS – Salomon Cohen Cohen, MD, Edinson Najera MD, Ana Carolina Igami Nakassa MD, Huy Q Truong MD, Nathan T Zwagerman MD, Carl Snyderman MD, Eric Wang MD, Paul Gardner MD, Juan C Fernandez-Miranda MD; Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, Department of Neurological Surgery, University of Pittsburgh School of Medicine, Departments of Otolaryngology and Center for Cranial Base Surgery, University of Pittsburgh Medical Center, Departments of Neurological Surgery and Center for Cranial Base Surgery, University of Pittsburgh Medical Center
Scientific Program

137: VISUAL ACUITY OUTCOME IN PATIENTS WITH ACUTE PITUITARY APOPLEXY AFTER HYPERACUTE TRANSPHENOIDAL SURGERY – Nadine Ibrahim, BS, Todd Hollon, MD, Jonathan Trobe, MD, Ariel Barkan, MD, Stephen E Sullivan, MD, Erin L McKean, MD; University of Michigan

138: THE ASSOCIATION OF POSTOPERATIVE PROLACTIN SERUM CONCENTRATION WITH RECURRENCE OF PROLACTINOMA – Martin Rutkowski, MD, Sandeep Kunwar, MD, Lewis Blevins, MD, Manish Aghi, MD, PhD; UCSF

139: A PROPOSED GRADING SYSTEM FOR TUMOR CONSISTENCY OF PITUITARY ADENOMAS – Ki-Eun Chang, Kyoei Itamura, Joshua Lucas, Gabriel Zada; University of Southern California

140: MORTALITY IN PITUITARY ADENOMA SURGERY IN TEACHING VERSUS NONTEACHING HOSPITALS – Josephine Volovetz, Min Lang, Lu Dai, Ghaith Haboub, Paramita Das, Shahed Tish, Jaes Jones, Samantha Colby, Varun R Kshettry, Pablo F Recinos; Cleveland Clinic

141: EVALUATION OF OUTCOMES AFTER ENDOSCOPIC ENDONASAL SURGERY FOR LARGE AND GIANT PITUITARY MACROADENOMA: A RETROSPECTIVE REVIEW OF 39 CONSECUTIVE PATIENTS – Shamik Chakraborty, MD, Georgios Klironomos, MD, Mark Eisenberg, MD, Amir Dehdashti, MD; Hofstra Northwell School of Medicine

PROFFERED PAPERS 13: Skull Base Reconstruction

142: TRANSMASTOID APPROACH FOR REPAIR OF SUPERIOR SEMICIRCULAR CANAL DEHISCENCE – Prasanth Romiyo, BS1, Thien Nguyen, BS2, Courtney Duong, BS3, Tyler Miao, BS3, Carlito Lagman, MD1, Gyarupuram Prashant, MD2, Isaac Yang, MD2; 1Cooper Medical School of Rowan University, 2David Geffen School of Medicine at UCLA, 3Department of Otolaryngology - Head and Neck Surgery, University of California, Los Angeles

143: ORBITAL WALL RECONSTRUCTION FOR TUMOR-ASSOCIATED PROPTOSIS: EFFECT OF POST-OPERATIVE ORBITAL VOLUME ON FINAL EYE POSITION – Robert Heller, MD, Carl Heilman, MD; Department of Neurosurgery, Tufts Medical Center

144: PEDICLED NASOSEPTAL FLAP OUTCOMES FOLLOWING PREVIOUS SINONASAL/SKULL BASE SURGERY – Zainab Farzal, MD, Katherine Adams, BS, Satyan B Sreenath, MD, Elizabeth Stephenson, BA, Parth V Shah, MD, Maheer M Masood, BA, Douglas R Farquhar, MD, Charles S Ebert, Jr., MD, MPH, Brian D Thorp, MD, Adam M Zanation, MD; University of North Carolina at Chapel Hill

145: THE MR IMAGING APPEARANCE OF ENDOSCOPIC ENDONASAL SKULL BASE DEFECT RECONSTRUCTION USING FREE MUCOSAL GRAFTS – Christine S Kim, MD, Umesh Patel, MD, Mamie Higgins, MD, Gaetano Pastena, MD, Maria Peris-Celda, MD, Tyler Kenning, MD, Carlos Pinheiro-Neto, MD; Albany Medical Center

146: ENDOSCOPIC ANTERIOR CRANIAL BASE RESSECTION ON PATIENTS WITH PREVIOUS FRONTAL SINUS CRANIALIZATION: CHALLENGING RECONSTRUCTION – Mamie Higgins, MD1, Tyler Kenning, MD2, Carlos Pinheiro-Neto, MD, PhD3; 1Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, NY, 2Department of Neurosurgery, Albany Medical Center, Albany, NY, 3Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, NY

147: USE OF COLLAGEN MATRIX FOR SKULL BASE RECONSTRUCTION FOLLOWING ENDOSCOPIC ENDONASAL RESECTION OF PITUITARY ADENOMA – Aleea S Montaser, MD, Mostafa Shahein, MD, Juan M Revuelta Barbero, MD, Guillermo Maza Malve, MD, Alexandre Todeschini, MD, Daniel M Prevedello, MD, Bradley A Otto, MD, Ricardo L Carrau, MD; The Ohio State University Wexner Medical Center

148: SALVAGE SKULL BASE RECONSTRUCTION IN THE ENDOSCOPIC ERA: THE VASTUS LATERALIS FREE TISSUE TRANSFER – Stephen Y Kang, MD, Antoine Eskander, Ralph Abi-Hachem, Theodoros N Teknos, Enver Ozer, Matthew O Old, Daniel M Prevedello, Ricardo L Carrau; The Ohio State University Wexner Medical Center

4:15 pm – 6:15 pm  
RHOTON ROOM

RHOTON ANATOMY: 3D Anatomy of Far Lateral, Extreme Lateral and Transcondydar Approach, Lower Cranial Nerve Trajectory, Jugular Foramen, Neck Dissection
SPEAKER: Jeff Sorenson

RADIOLOGY
SPEAKER: Tanya Rath, MD

DUELING DISSECTIONS: Endonasal – Transorbital Resection Tumor (Left Eye); Supraorbital Endoscopic Approaches to Anterior Skull Base (Right Eye)
MODERATOR: Chris Bergeron
PARTICIPANTS: Kris Moe & Darlene Lubbe, MD
Scientific Program

5:15 pm – 6:15 pm  WORLD SKULL BASE LEADERSHIP GROUP

Fifteen Lessons Learned In Skull Base Surgery: An International Perspective
In cooperation with the Skull Base Committee of the WFNS
MODERATOR: Jose Alberto Landeiro

SPEAKERS: Engelbert Knosp, MD; Kenji Ohata, MD, PhD; Jacques Morcos, MD, FRCS, FAANS; Keki Turel, MBBS, MS; Ossama Al-Mefty, MD

- Three Lessons from Pituitary Adenomas – Engelbert Knosp, MD
- Three Lessons from Craniopharyngiomasa – Kenji Ohata, MD, PhD
- Three Lessons from The Cavernous Sinus – Jacques Morcos, MD, FRCS, FAANS
- Three Lessons from Complications – Keki Turel, MBBS, MS
- Three Lessons from Meningiomas – Ossama Al-Mefty, MD
- Panel Discussion – All

At the conclusion of this session, participants will be able to:
1. Select the best approach to many skull base pathologies.
2. Identify the risks involving the surgery of each tumor described in this course.
3. Solve the complications of these surgeries and how to avoid them.

6:45 pm – 7:30 pm  New Member Reception

7:30 pm – 10:00 pm  NASBS Beach Blowout
SUNDAY, FEBRUARY 18, 2018

6:30 am – 12:00 pm  Registration  Constellation Foyer, 2nd Floor
7:00 am – 7:30 am  Breakfast  Commodore Foyer
7:30 am – 8:30 am  PITUITARY FORUM SESSION

PITUITARY SESSION 1: Updates on Functional Adenomas
MODERATORs: Mark Eisenberg, MD & Nelson Oyesiku, MD, PhD, FACS
SPEAKERS: Shlomo Melmed, MD; André Grotenhuis, MD, PhD; Zachary Litvack, MD, MCR; Edward Laws, MD; Ajay Niranjan, MD, MBA; Marvin Bergsneider, MD; Avi Setton, MD

- Acromegaly: Updates In Management – Shlomo Melmed, MD
- Advances in Surgical Technique for Functional Adenomas – André Grotenhuis, MD, PhD
- Current Evidence and Best Practice for Radiosurgery for Management of Functional Adenoma – Zachary Litvack, MD, MCR
- WHO Classification of Functioning Pituitary Tumors, and Their Implication for Clinical Care – Edward Laws, MD
- Role of Radiosurgery for Functional Adenomas – Ajay Niranjan, MD, MBA
- Surgical Management of Giant Pituitary Adenomas – Marvin Bergsneider, MD
- Inferior Petrosal Sampling, Indications, Technique – Avi Setton, MD

This sessions is directed to neurosurgeons and ENT surgeons; it will provide updates in the medical and surgical management of functional pituitary adenoma.

At the conclusion of this session, participants will be able to:
1. Classify functional adenomas using the recent WHO classification and relate this to clinical care.
2. Articulate the current management of functional adenomas.
3. Implement radiosurgery management and advanced surgical techniques in the care of functional adenomas.

7:30 am – 8:30 am  MAIN TOPIC SESSIONS

MAIN TOPIC 9: Hearing Preservation and Restoration
MODERATORS: Christine Dinh, MD & Dennis Bojrab, MD
SPEAKERS: Jacob Hunter, MD; Gregory Basura, MD, PhD; Erika Woodson, MD; Amir Samii, MD; Soha Ghossaini, MD; Adrien Eshraghi, MD; Robert Behr, MD, PhD

- Hearing Preservation Outcomes with Observation for Vestibular Schwannoma – Jacob Hunter, MD
- Hearing Preservation Outcomes with Stereotactic Radiosurgery for Vestibular Schwannoma – Gregory Basura, MD, PhD
- Hearing Preservation Outcomes with Middle Cranial Fossa Craniotomy for Vestibular Schwannoma – Erika Woodson, MD
- Hearing Preservation Outcomes with Retrosigmoid Craniotomy for Vestibular Schwannoma – Amir Samii, MD
- Bone Anchored Implants for Single Sided Deafness – Soha Ghossaini, MD
- Cochlear Implantation after Vestibular Schwannoma Resection – Adrien Eshraghi, MD
- Hearing Restoration in NF2: Options and Expectations – Robert Behr, MD, PhD
- Case Presentation and Panel Discussion: Preserving Hearing in Vestibular Schwannoma Patients – Christine Dinh, MD & Dennis Bojrab, MD

This session will review short and long-term hearing preservation outcomes in the treatment of vestibular schwannoma, describe hearing restoration options and results, and discuss decision making strategies for hearing preservation. The intended audience includes skull base Neurotologists, Neurosurgeons, and Radiation Oncologists.

At the conclusion of this session, participants will be able to:
1. Integrate knowledge about hearing preservation outcomes and techniques to improve patient selection and treatment outcomes in vestibular schwannoma.
2. Differentiate different hearing restoration modalities and recognize appropriate patients for hearing rehabilitation techniques.
7:30 am - 8:30 am  HOT TOPIC SESSIONS

HOT TOPIC 7: Update on Management of Anterior Skull Base Trauma

MODERATORS: Peter Amenta, MD & Anand Devaiah, MD

SPEAKERS: Joseph Chabot, DO; Bradford Woodworth, MD; Ralph Abi Hachem, MD, MD; Jamie Ullman; Harminder Singh

- Open Surgical Management of Frontal Sinus Fractures - Joseph Chabot, DO
- Transnasal Endoscopic Management of Frontal Sinus Trauma - Bradford Woodworth, MD
- Endoscopic Endonasal Repair of Traumatic CSF Leak - Ralph Abi Hachem, MD
- Management of Traumatic CSF Leak - Jamie Ullman
- Management of Traumatic Epistaxis and Penetrating Anterior Skull Base Trauma - Harminder Singh
- Panel Discussion – All

A review of current practices and management options for traumatic pathologies of the anterior skull base. The session is designed for practitioners in neurosurgery, otolaryngology, and ophthalmology.

At the conclusion of this session, participants will be able to:
1. Identify advances in techniques/technology used in the management of anterior skull base trauma.
2. Recognize current practices in the management of anterior skull base trauma.
3. Prioritize complication avoidance and management.

HOT TOPIC 8: Endoscopic/Standard Transorbital Surgery, 360 Degrees Approach

MODERATORS: Kris Moe & Darlene Lubbe, MD

SPEAKERS: Kris Moe; Darlene Lubbe, MD; Jean Anderson Eloy; Khaled Aziz, MD, PhD; Bita Esmaeli; Dan Rootman; Steven Newman

- Introduction to Transorbital Surgery: Where Are We Today – Kris Moe
- The Role of Multiportal Surgery – Darlene Lubbe, MD
- Transorbital Surgery for Anterior Cranial Fossa Lesions – Khaled Aziz, MD, PhD
- What’s New in Management of Lacrimal Gland Carcinomas – Bita Esmaeli
- Combined Endoscopic and Transorbital Surgery: Medial and Lateral Approaches – Dan Rootman
- Fine Needle Biopsy of Orbital Lesions – Steven Newman

This session will aim to discuss transorbital surgery with regards to different pathologies that can be addressed, the multidisciplinary approach to lesions involving the orbit and skull base and the benefits and limitations of transorbital surgery. Rhinologists, neurosurgeons and ophthalmologists with an interest in orbital surgery should attend this session.

At the conclusion of this session, participants will be able to:
1. Select a specific transorbital approach to address a specific orbital or skull base lesion.
2. Recognize the importance of a multidisciplinary team approach to trans orbital surgery.
3. Compare the benefits and risks of endoscopic transorbital surgery to traditional open surgery.

7:30 am - 9:35 am  RHOTON ROOM

RHOTON ANATOMY AND RADIOLOGY: Neck & Temporal Bone

SPEAKERS: Hugh Curtin, MD & Lawrence Ginsberg, MD
8:35 am – 9:35 am  **PITUITARY FORUM SESSION**

**PITUITARY SESSION 2: Avoiding Complications and Optimizing Outcomes in Pituitary Surgery**  
*Commodore CD*

**MODERATORS:** Andrew Little, MD & Manish Aghi, MD, PhD

**SPEAKERS:** Daniel Kelly, MD; Marc Cohen, MD, MPH; Peter Gooderham, MD; John Jane, Jr, MD, PhD, FACS, FRCS; Engelbert Knosp, MD; Kevin Lillehei

- Avoiding CSF Leaks and Meningitis – *Daniel Kelly, MD*
- Strategies to Optimize Outcomes Before the Neurosurgeon Comes in the Room (and After They Leave) – *Marc Cohen, MD, MPH*
- Optimizing Outcomes in Patients with Acromegaly – *Peter Gooderham, MD*
- Posterior Pseudocapsule Technique and Gland Preservation – *John Jane, Jr, MD, PhD, FACS, FRCS*
- When is Cavernous Sinus Exploration Indicated – *Engelbert Knosp, MD*
- Optimizing Outcomes In Patients With Cushing’s Disease – *Kevin Lillehei*

This session includes six high-yield presentations by leading pituitary experts on how to optimize surgical outcomes and limit complications. This session is appropriate for surgical residents, fellows, and faculty who are looking to learn about the surgical nuances of managing these patients.

At the conclusion of this session, participants will be able to:

1. Limit postoperative spinal fluid leak in their practice.
2. Preserve pituitary gland function.
3. Optimize Cushing’s Disease surgery.

8:35 am – 9:35 am  **HOT TOPIC SESSIONS**

**HOT TOPIC 9: Vascular and Lymphatic Diseases of the Head, Neck, & Skull Base**  
*Commodore B*

**MODERATORS:** Jeff Janus, MD & Frank Hsu

**SPEAKERS:** Doron Sommer, MD; Pascal Jabbour, MD; M. Yashar Kalani, MD, PhD; Gurav Saigal, MD; Rafael Ortiz, MD; Randall Feingold, MD

- Introduction – *Jeff Janus, MD*
- JNA in the Pediatric Population – *Doron Sommer, MD*
- Dural Arteriovenous Fistulas and Carotid Cavernous Fistulas – *Pascal Jabbour, MD*
- Dural Lymphatics and Neck Metastasis – *M. Yashar Kalani, MD, PhD*
- Imaging of Extracranial Vascular Malformations – *Gurav Saigal, MD*
- Microcatheter Sclerotherapy for Lymphatic Malformations of the Orbit, Face, Head, and Neck – *Rafael Ortiz, MD*
- Reconstruction After Treatment of Lymphovascular Lesions – *Randall Feingold, MD*
- Q&A and Closing Remarks – *Frank Hsu*

Vascular and lymphatic diseases of the head, neck, & skull base pose diagnostic, treatment, and reconstructive challenges to Otolaryngologists, Neurosurgeons, and Reconstructive Surgeons alike. In this session, we will review case presentations of skull base, face, and neck vascular and lymphatic diseases, also addressing facial reconstruction.

At the conclusion of this session, participants will be able to:

1. Articulate the available treatment modalities for juvenile nasopharyngeal angiofibroma
2. Diagnose and prepare treatment options for dural AV fistula.
3. Recognize the role of dural lymphatics in the development of neck metastasis for skull base malignancy.
4. Understand the treatment options for lymphatic malformations, including sclerotherapy and surgery.
5. Produce a list of general reconstructive considerations after the treatment of facial lymphatic malformations.
HOT TOPIC 10: **Inflammatory and Infectious Diseases of the Skull Base**

**MODERATORS:** Joe Kutz, MD & Paul Russell, MD

**SPEAKERS:** Perry Mansfield, MD; John Lee, MD; Anthony Zeitouni, MD; Ian Humphreys, DO; Claudia Kirsch, MD; Ken Byrd, MD

- Current Evaluation And Management Of Invasive Fungal Disease Of The Skull Base – **Perry Mansfield, MD**
- Allergic Fungal Sinusitis with Skull Base Erosion – **John Lee, MD**
- Osteoradionecrosis of the Skull Base – **Anthony Zeitouni, MD**
- Management of Skull Base Mucoceles – **Ian Humphreys, DO**
- Imaging Features of Tumefactive Fibroinflammatory Lesions, Pseudotumor and IgG4 in the Skull Base – **Claudia Kirsch, MD**
- Diagnosis and Management of Skull Base Pseudotumors – **Ken Byrd, MD**

We will provide a forum for the discussion of skull base problems, with an emphasis on non-malignant processes. All surgeons dealing with the skull base will benefit from the discussion of these problems.

At the conclusion of this session, participants will be able to:
1. Diagnose the various skull base lesions.
2. Formulate the appropriate treatments.

8:35 am – 9:35 am  **EXPERT DEBATE SESSIONS**

**EXPERT DEBATE 9: Sinonasal Cancer – Surgical vs. Non Surgical Management**

**MODERATORS:** Shirley Su, MD & Mark Swanson, MD

**SPEAKERS:** Jack Phan, MD; Elizabeth Niccolli, MD; Gurston Nyquist, MD; Rony Aouad, MD; George Blumenschein, MD; Allan Vescan, MD; Nagy Elsayyad, MD, FACP; Marilene Wang, MD

This session will present cases with complex management decisions to an expert panel. Decisions will include surgical vs non-surgical therapy, surgical approach used, and role for neoadjuvant therapies. This session is designed for surgeons, medical oncologists, and radiation oncologists who treat anterior skull base malignancies.

At the conclusion of this session, participants will be able to:
1. Evaluate the role of multimodality treatment in the management of complex sinonasal tumors.
2. Identify recent advances in multimodality treatment for sinonasal tumors.
3. Compare the indications and limitations of each modality.

9:35 am – 10:05 am  **Morning Break**

10:10 am – 12:00 pm  **PROFFERED PAPERS SESSIONS**

**PROFFERED PAPERS 14: Pituitary Adenomas**

**149: STEREOTACTIC RADIOSURGERY FOR CUSHING’S DISEASE: RESULTS OF AN INTERNATIONAL, MULTICENTER STUDY** – Gautam U Mehta\(^1\), Dale Ding\(^1\), Mohana R Patibandla\(^2\), Hideyuki Kano\(^2\), Nathaniel Sisterson\(^2\), Yan-Hua Su\(^2\), Michal Krsek\(^4\), Ahmed M Nabeel\(^5\), Amr El-Shehaby\(^5\), Khaled A Kareem\(^5\), Nuria Martinez-Moreno\(^6\), David Mathieu\(^7\), Brendan McShane\(^8\), Kevin Blas\(^9\), Douglas Kondziolka\(^10\), Inga Grills\(^9\), John Y Lee\(^8\), Roberto Martinez-Alvarez\(^6\), Wael A Reda\(^5\), Roman Liscak\(^11\), Cheng-Chia Lee\(^3\), L. Dade Lunsford\(^2\), Mary Lee Vance\(^8\), Jason P Sheehan\(^2\), Wael A Reda\(^5\), Roman Liscak\(^11\), Cheng-Chia Lee\(^3\), L. Dade Lunsford\(^2\), Mary Lee Vance\(^8\), Jason P Sheehan\(^2\), Wael A Reda\(^5\), Roman Liscak\(^11\), Cheng-Chia Lee\(^3\), L. Dade Lunsford\(^2\), Mary Lee Vance\(^8\), Jason P Sheehan\(^2\), Wael A Reda\(^5\), Roman Liscak\(^11\), Cheng-Chia Lee\(^3\), L. Dade Lunsford\(^2\), Mary Lee Vance\(^8\), Jason P Sheehan\(^2\)

**150: EARLY VERSUS DELAYED FRACTIONATED STEREOTACTIC RADIONUCLIDE THERAPY FOR RESIDUAL AND PROGRESSIVE NONFUNCTIONING PITUITARY ADENOMAS** – Alan Siu, MD, MS\(^1\), Purvee Patel, BA\(^2\), Wenyin Shi, MD, PhD\(^1\), James J Evans, MD\(^1\), Christopher J Farrell, MD\(^1\), Thomas Jefferson University, Rutgers Robert Wood Johnson Medical School

**151: SUBTOTAL RESECTION OF PITUITARY APOPLEXY IS ASSOCIATED WITH RECURRENT APOPLEXY** – Alan Siu, MD\(^1\), Sanjeet Rangarajan, MD\(^1\), Christopher Farrell, MD, Gurston Nyquist, MD, Marc Rosen, MD, James J Evans, MD; Thomas Jefferson University

**152: APPROACHES TO THE SELLA WITH THE PRESERVATION OF THE PEDICLE TO THE NASOSEPTAL FLAP** – Alan Siu, MD\(^1\), Sanjeet Rangarajan, MD\(^1\), Purvee Patel, BA\(^2\), Eric Chen, PhD\(^1\), Michael Li, PhD\(^1\), Christopher Farrell, MD\(^1\), Gurston Nyquist, MD\(^1\), Mindy Rabinowitz, MD\(^1\), Marc Rosen, MD\(^1\), James Evans, MD; Thomas Jefferson University, Rutgers University
PROFFERED PAPERS 15: Vestibular Schwannomas

164: IMPACT OF COCHLEAR DOSE ON HEARING PRESERVATION RATES FOLLOWING GAMMA KNIFE RADIOSURGERY FOR NON-VESTIBULAR SCHWANNOMAS OF THE LATERAL SKULL BASE – Lucas P Carlstrom, Jeffrey T Jacobs, Matthew L Carlson, Marcus J Gates, Michael S Oldenburg, Robert L Foote, Bruce E Pollock, Colin L Driscoll, Michael J Link; Mayo Clinic

165: ENDOSCOPIC ASSISTANCE IN RETROSIGMOID TRANSMEATAL APPROACH FOR THE MANAGEMENT OF CSF FISTULA IN VESTIBULAR SCHWANNOMAS – Marcos Tatagiba, MD, PhD; Department of Neurosurgery, University Hospital Tuebingen, Germany

166: PRESENTATION AND TUMOR SIZE IN PATIENTS WITH VESTIBULAR SCHWANNOMA: ANALYSIS OF A MULTI-CENTER QUESTIONNAIRE STUDY IN 1306 PATIENTS – Maria Peris-Celda, MD, PhD; Panagiotis Kerezoudis, MD, PhD, Matthew L Carlson, MD, Michael J Link, MD; 1Department of Neurosurgery Mayo Clinic, Rochester, MN; 2Department of Otolaryngology Mayo Clinic, Rochester, MN

167: FACIAL NERVE FUNCTION IN A SERIES OF 494 VESTIBULAR SCHWANNOMAS – IMPROVEMENT BY TECHNICAL AMENDMENTS? – Cordula Matthes, Prof, MD, PhD; Robert Nickl, Maria Hummel, José Perez, MD, Mario Loehr, MD, PhD; Ralf-Ingo Ernestus, Prof, MD, PhD; Rudolf Hagen, Prof, MD, PhD; 1Department of Neurosurgery, Wuerzburg University Hospital, 2Department of Otorhinolaryngology
168: CHANGING CRITERIA FOR ATTEMPTS AT HEARING PRESERVATION IN ACUSTIC NEUROMA SURGERY - Kurt Grahnke1, Jehad Zakaria2, Caroline Szujewski2, Giselie Malina2, Adriana Russi2, Rebecca Rajasekhar2, John P Leonetti2, Douglas E Anderson2, 1Loyola University Medical Center, 2Loyola University Stritch School of Medicine

169: IMMUNE MICROENVIRONMENT OF VESTIBULAR SCHWANNOMAS - Weny Li Bi, MD, PhD1, Yu Mei, MD, PhD2, Malak Abdalhagafi, MD2, Ian F Dunn, MD2, 1Department of Neurosurgery, Brigham and Women’s Hospital, 2King Fahad Medical City and King Abdulaziz City for Science and Technology

170: VARIATION IN CODING PRACTICES FOR VESTIBULAR SCHWANNOMA SURGERY - Weny Li Bi, MD, PhD1, Michael Mooney, MD2, Seungwon Yoon, BS2, Saksham Gupta, BA1, C. Eduardo Corrales, MD2, Ian F Dunn, MD2, 1Department of Neurosurgery, Brigham and Women’s Hospital, 2Barrow Neurological Institute, St. Joseph’s Hospital and Medical Center, 3Division of Otolaryngology, Brigham and Women’s Hospital

171: MICROSURGICAL RESECTION OF LARGE AND GIANT ACOUSTIC NEUROMAS: A FOCUS ON FACIAL NERVE OUTCOMES AND COMPLICATIONS - Angela M Richardson, David J McCarthy, A Eshraghi, S A Angeli, F Telischi, Jacques J Morris, University of Michigan / Jackson Memorial Hospital

172: EVOLUTION OF STEREOTACTIC RADIOSURGERY FOR VESTIBULAR SCHWANNOMAS: A SINGLE CENTER EXPERIENCE OVER THIRTY YEARS - Angela M Richardson, David J McCarthy, Jacques J Morris, Nagy ElSayyad, University of Miami / Jackson Memorial Hospital

PROFFERED PAPERS 16: Chordomas and Chondrosarcomas

173: PEDIATRIC CLIVAL CHORDOMA: A CASE SERIES AND RATIONALE FOR NEXT GENERATION SEQUENCING - Kevin J Kovatch, MD1, Molly E Heft Neal, MD1, Nicole M Michmerhuizen, BS2, John Henry Owen, MS1, S. Ahmed Ali, MD1, J. Chad Brenner, PhD1, Mark EP Prince, MD1, Stephen E Sullivan, MD2, Erin L McKean, MD1, MBA1, University of Michigan Department of Otolaryngology-Head and Neck Surgery, 2University of Michigan Department of Neurosurgery

174: A PROSPECTIVE OUTCOMES STUDY OF PROTON THERAPY FOR SKULL-BASE CHONDROSARCOMAS - Adam L Holtzman, MD1, Ronny L Rotondo, MD, CM, FRCPC2, Michael S Rutenberg, MD, Daniel J Indelicato, MD, Christopher G Morris, MS, William M Mendenhall, MD, University of Florida College of Medicine

175: PROPOSED TREATMENT PARADIGM FOR INTRACRANIAL CHONDROSARCOMAS BASED ON MULTIDISCIPLINARY COORDINATION - Da Li1, Zhen Wu, Li-Wei Zhang, Jun-Ting Zhang, Beijing Tiantan Hospital, Capital Medical University

176: DESCRIPTIVE EPIDEMIOLOGY OF CRANIAL CHORDOMAS IN THE UNITED STATES - Paramita Das, MD1, Jaes Jones1, Gaith Habboub, MD1, Quinn T Ostrom2, Carol Kruckho2, Jill S Barnholtz-Sloan, PhD3, Pablo Recinos, MD1, Varun Kshettry, MD1, Cleveland Clinic, 2Case Western Reserve University

177: ENDOSCOPIC ENDONASAL TRANSCLIVAL APPROACH WITH THE POSTERIOR CLINOIDECTOMY - Hiroki Ohata, Departments of Neurological Surgery, Osaka City University Graduate School of Medicine, Osaka, Japan

178: CRANIAL CHONDROSARCOMAS: DESCRIPTIVE EPIDEMIOLOGY FROM THE YEARS 2001 TO 2014 IN THE UNITED STATES - Jaes C Jones1, Gaith Habboub, MD2, Paramita Das, MD2, Min Lang, MS1, Samantha Colby1, Josephine Volovetz1, Alex Witte, MD2, Shahed Tish, MD2, Quinn T Ostrom, MA, MPH4, Carol Kruchko4, Jill S Barnholtz-Sloan, PhD4, Varun Kshettry, MD2, Pablo Recinos, MD2, Cleveland Clinic Lerner College of Medicine, 2Cleveland Clinic Foundation, 3Case Western Reserve University School of Medicine, 4Case Western Reserve University Case Comprehensive Cancer Center, 5Central Brain Tumor Registry of the United States

179: VISUAL CHANGES FOLLOWING CYBERKNIFE RADIOSURGERY FOR SKULL BASE CHORDOMAS AND CHONDROSARCOMAS - Swapnil S Mehta, BS1, Yagmur Muftuoglu, BS, BA, PhD1, Geoffrey Appelboom, MD, PhD, Kevin Kumar, MD, PhD, Justin Moore, MD, PhD, JD, FRACS, Scott Soltys, MD, Steven D Chang, MD, Stanford University

180: VOLUMETRIC ANALYSIS OF EXTENT OF RESECTION, SURVIVAL, AND SURGICAL OUTCOMES, FOR SKULL BASE CHORDOMAS - Chikezie Eseonu, MD1, Gugan Raghuraman, Douglas Reh, MD, Masaru Ishii, MD, Gary Gallia, MD, PhD; Johns Hopkins University

181: THE ROLE OF ENDOSCOPIC ENDONASAL SURGERY IN THE MANAGEMENT OF SKULL BASE CHONDROSARCOMAS: TECHNICAL NUANCES AND SHORT-TERM OUTCOME - Camila Dassi, MD,Ana Belén Melgarro,Mingxin Sun, MD, Daniel M Prevedello, MD, Bradley A Otto, MD, Ricardo L Carrau, MD; The Ohio State University Wexner Medical Center

PROFFERED PAPERS 17: Sinonasal Neoplasms

182: RADIATION INDUCED HYPOPITUITARISM IN CRANIAL BASE MALIGNANCIES: CLINICAL OUTCOMES, SCREENING AND DOSIMETRIC ANALYSIS - Kyle K VanKoevering, MD1, Katayoon Sabetsavestani2, Jae Lee2, Arial Barkan2, Michelle Mierzwa1, Erin L McKean2, 1Ohio State University, 2Northwestern University, 3University of Michigan, 4University of Michigan
183: INDUCTION CHEMOTHERAPY FOR SINONASAL SQUAMOUS CELL CARCINOMA – Ahmed S Abdelmeguid, MD, PhD; Watchareporn Teeramatwanich, MD; Dianna Roberts, PhD; Merril Kies, MD; Michael E Kupferman, MD; Shirley Y Su, Shaan M Raza, MD; Franco DeMonte, MD; Ebah Y Hanna, MD; Department of Head and Neck Surgery, The University of Texas MD Anderson Cancer Center; Department of Thoracic Head and Neck Medical Oncology, The University of Texas MD Anderson Cancer Center, Department of Neurosurgery, The University of Texas MD Anderson Cancer Center

184: LONG TERM OUTCOMES OF OLFACTORY NEUROBLASTOMA: MD ANDERSON EXPERIENCE – Ahmed S Abdelmeguid, MD, PhD; Watchareporn Teeramatwanich, MD; Dianna Roberts, PhD; Michael E Kupferman, MD; Shirley Y Su, Shaan M Raza, MD; Franco DeMonte, MD; Ebah Y Hanna, MD; Department of Head and Neck Surgery, The University of Texas MD Anderson Cancer Center; Department of Neurosurgery, The University of Texas MD Anderson Cancer Center

185: PROACTIVE APPROACH TO SURVEILLANCE OF SINONASAL INVERTED PAPILLOMA – Mark Chaskes, MD; Ian Koszewski, MD; Sanjeet Rangarajan, MD; Hermes Garcia, MD; Gurston Nyquist, MD; Mindy Rabinowitz, MD; James Evans, MD; Marc Rosen, MD; Thomas Jefferson University, University of Tennessee Health Science Center

186: SINONASAL AND VENTRAL SKULL BASE NEOPLASMS IN THE PEDIATRIC POPULATION: A SYSTEMATIC REVIEW AND META ANALYSIS – Kerolos Shenouda, MD; Peter F Svider, MD; Nathan Gonik, MD; Jean Anderson Eloy, MD, FACS; Adam J Folbe, MD; Department of Otolaryngology – Head and Neck Surgery, Wayne State University School of Medicine, Detroit, MI; Department of Otolaryngology – Head and Neck Surgery, Wayne State University School of Medicine, Detroit, MI; Children's Hospital of Michigan, Detroit Medical Center, Detroit, MI; Department of Neurological Surgery, Center for Skull Base and Pituitary Surgery; Department of Ophthamology and Visual Sciences, Rutgers New Jersey Medical School, Newark, NJ

187: SURGICAL RESECTION OF SKULL BASE MALIGNANCY: PERIOPERATIVE AND LONG-TERM OUTCOMES – Elizabeth D Stephenson, BA; Douglas R Farquhar, MD, MPH; Maheer M Masood, BA; Saangyoung E Lee, BS; Katherine Adams, BS; Zainab Farzad, MD; Brian Thorp, MD; Charles S Ebert, Jr, MD, MPH; Deanna Sasaki-Adams, MD; Adam M Zanation, MD; University of North Carolina at Chapel Hill, Department of Neurosurgery, University of North Carolina at Chapel Hill

188: PROGNOSTIC IMPACT OF ADVERSE PATHOLOGIC FEATURES IN SINONASAL SQUAMOUS CELL CARCINOMA – Anurag S Parikh, MD; Jennifer C Fuller, MD; Ashton E Lehmann, MD; Neerav Goyal, MD; Stacey T Gray, MD; Derrick T Lin, MD; Massachusetts Eye and Ear Infirmary, Boston, MA; University of Texas Southwestern Medical Center, Dallas, TX

189: AN ANALYSIS OF ENDOSCOPIC AND OPEN APPROACHES TO SINONASAL MALIGNANCIES IN THE NATIONAL CANCER DATABASE FROM 2010-2014 – Rohan R Joshi, Ayukk Unsal, DO, Jennifer R Cracchiolo, MD, Jocelyn C Migliacci, MA, Benjamin R Roman, MD, MSHP, Marc A Cohen, MD, MPH; Memorial Sloan Kettering Cancer Center

190: RETROSPECTIVE REVIEW OF A TERTIARY REFERRAL CENTER OF EPITHELIAL SINUS NASAL AND ANTERIOR SKULL BASE TUMORS : A 6 YEAR REVIEW – Aman Ben Moussa, Badr Ibrahim, MD, Francois Lavigne, MD, FRCSC; Université de Montréal

191: SINONASAL UNDIFFERENTIATED CARCINOMA: AN UPDATE ON SURVIVAL AND PROGNOSTIC MARKERS – Molly E Heft; Neal MD, Andrew C Birkeland, MD, Kyle K VanKoevering, MD, J. Chad Brenner, PhD, Marentette Lawrence, MD, FACS, Stephen E Sullivan, MD, Erin L McKean, MD; University of Michigan

PROFFERED PAPERS 18: Training & Education

192: LEARNING CURVE OF A VIRTUAL REALITY SIMULATOR (NEUROTOUCH) FOR ENDOSCOPIC SINUS SURGERY – Mirko Manojlovic Kolarski, MD, Christopher Yao, MD, Stephen Chen, PhD, MD, Eric Monteiro, MD, FRCSC, John Lee, MD, FRCSC, MSc, Allan Vescan, MD, FRCSC, MSc; University of Toronto

193: VALIDATION OF TRAINING LEVELS IN ENDOSCOPIC ENDONASAL SURGERY OF THE SKULL BASE – Philippe Lavigne, MD; Daniel L Faden, MD; Eric W Wang, MD; Paul A Gardner, MD; Juan C Fernandez-Miranda, MD; Carl H Snyderman, MD, MBA; Department of Otolaryngology, University of Pittsburgh School of Medicine, Department of Neurological Surgery, University of Pittsburgh School of Medicine

194: USE ENDOSCOPE AND INSTRUMENT AND PATHWAY RELATIVE MOTION AS METRIC FOR AUTOMATED OBJECTIVE SURGICAL SKILL ASSESSMENT IN SKULL BASE AND SINUS SURGERY – Yangming Li, Randall Bly, Mark Whipple, Ian Humphreys, Blake Hannaford, Kris Moe; University of Washington

195: SIMULATION BASED CONSULTATIONS FOR PATIENTS WITH CRANIAL TUMORS AND CEREBROVASCULAR PATHOLOGY – Leslie Schlachter, PAC; Holly E Oemke, Anthony B Costa, PhD, Joshua B Bederson, MD; Mount Sinai Hospital of Texas MD Anderson Cancer Center

196: INITIAL REPORT ON THE NEXUS ONLINE CASE-BASED NEUROSURGICAL EDUCATION PLATFORM – Simone E Dekker, MD, PhD; Thomas A Ostergard, MD; Chad Glenn, MD; Kevin Yoo, BA; Anisha Garg, BA, MS; Peter Nakaji, MD; Nicholas C Bambakis, MD; University Hospitals Cleveland Medical Center; Lewis Katz School of Medicine, Temple University; Case Western Reserve University School of Medicine, Barrow Neurological Institute
197: OBJECTIVE VALIDATION OF PERFUSION-BASED HUMAN LIVE CADAVERIC SIMULATION TRAINING MODEL FOR MANAGEMENT OF INTERNAL CAROTID ARTERY INJURY IN ENDOSCOPIC ENDONASAL SINUS AND SKULL BASE SURGERY - Gabriel Zada, MD, MS, Jasper Shen, Kevin Hur, Paul Zhang, Michael Minneti, Martin Pham, Bozena Wrobel; Keck USC

198: CPA TUMORS: THE LEARNING CURVE IN A SURGEON’S INITIAL 50 CASES - Michael E Ivan, MD, MBS, Angela Richardson, MD, PhD; University of Miami

199: FINDING MENTORSHIP FOR THE SKULL BASE TRAINEE - Angela M Richardson, MD, PhD, Valerie L Armstrong, Jacques J Morcos; University of Miami / Jackson Memorial Hospital

PROFFERED PAPERS 19: CSF Leaks

200: QUANTITATIVE DETERMINATION OF THE OPTIMAL TEMPOROPARIETAL FASCIA FLAP NECESSARY TO REPAIR SKULL BASE DEFECTS - Alan Siu, MD, Sanjeet Rangarajan, MD, Christopher Farrell, MD, Gurston Nyquist, MD, Mindy Rabinowitz, MD, Marc Rosen, MD, James Evans, MD; Thomas Jefferson University

201: SINGLE-CENTER EXPERIENCE WITH LUMBAR DRAIN USE FOR CEREBROSPINAL FLUID LEAK FOLLOWING TRANSPHENOIDAL SURGERY - Racheal Wolfson, MD, Devi Patra, Bharat Guthikonda, MD; Louisiana State University Health Sciences Center - Shreveport

202: LUMBAR DRAINAGE MAY REPRESENT A COST SAVING METHOD FOR SKULL BASE SURGERIES - Vishaal Pateli, BA, Gurpreet Gadhoke, MD, Paul A Gardner, MD, MD, Carl H Snyderman, MD, MBA; 1University of Pittsburgh School of Medicine, 2Department of Neurological Surgery, University of Pittsburgh School of Medicine, 3UPMC Center for Cranial Base Surgery

203: EVOLUTION OF THE GRADED REPAIR OF CEREBROSPINAL FLUID LEAKS & SKULL BASE DEFECTS IN ENDONASAL ENDOSCOPIC TUMOR SURGERY: TRENDS IN REPAIR FAILURE AND MENINGITIS RATES IN 509 PATIENTS - Andrew R Conger, MD, MS, Fan Zhao, MD, PhD, Xiaowen Wang, MD, Amalia Eisenberg, NP, Chester Griffiths, MD, Felice Esposito, MD, PhD, Ricardo L Carrau, MD, Garni Barkhoudarian, MD, Daniel F Kelly, MD; 1Geisinger Health System, 2Fudan University, 3Pacific Neuroscience Institute, 4University of Messina, Italy, 5Ohio State University

204: RISK FACTORS ASSOCIATED WITH INTRAOPERATIVE CEREBROSPINAL FLUID LEAK IN ENDOSCOPIC PITUITARY SURGERY - Karam W Badran, MD, Satvir Saggi, BS, Edward C Kuan, MD, MBA, David Hsu, MD, Marvin Bergsneider, MD, Marlene B Wang, MD; 1Department of Otolaryngology-Head and Neck Surgery, University of California, Los Angeles, California, 2Department of Otorhinolaryngology-Head and Neck Surgery, University of Pennsylvania, Philadelphia, Pennsylvania, 3Department of Neurosurgery, University of California, Los Angeles, California

205: MINIMALLY INVASIVE ENDOSCOPIC TRANS-EUSTACHIAN TUBE REPAIR OF REFRACTORY LATERAL SKULL BASE CSF RHINORRHEA: SURGICAL PARAMETERS - Erik C Brown, MD, MS, PhD, Brandon Lucke-Wold, PhD, Justin Cetas, MD, PhD, Sachin Gupta, MD, Timothy Hullar, MD, Jeremy N Ciporen, MD; 1Department of Neurosurgery, Oregon Health and Science University, 2MD/PhD Program, West Virginia University, 3Department of Otolaryngology, Oregon Health and Science University

206: PERSISTENT CEREBROSPINAL FLUID LEAK AFTER ENDOSCOPIC ENDONASAL APPROACH TO THE POSTERIOR CRANIAL FOSSA - Ana Carolina Iqami Nakassa, MD, Edinson Najera, MD, Hamid Borghesi-Razavi, MD, PhD, Huy Q Truong, MD, Xicai Sun, MD, Salomon Cohen, MD, Eric W Wang, MD, Carl H Snyderman, MD, MBA; 1Surgical Neuranatomy Lab, UPMC Center for Cranial Base Surgery, 2Department of Otolaryngology, University of Pittsburgh School of Medicine, 3Department of Neurological Surgery, University of Pittsburgh School of Medicine

207: PRIMARY DURA AND ARACHNOID CLOSURE USING TITANIUM CLIPS: ENDOSCOPIC ENDONASAL SURGERY RECONSTRUCTION TECHNIQUE - Marvin Bergsneider, MD, Quang Luu, Jeffrey Suh, Marilene Wang; UCLA

208: OUTCOMES ASSOCIATED WITH SKULL-BASE FRACTURES - A RETROSPECTIVE NATIONWIDE ANALYSIS - Anthony O Asemota, MD, MPH, Gary L Gallia, MD, PhD; Johns Hopkins Department of Neurosurgery

209: MANAGEMENT OF SKULL BASE FRACTURES IN A UK MAJOR TRAUMA CENTRE - John Hanrahan; Samir A Matloob, MD, Dimitrios Paraskevopoulos; 1Kings University, 2Royal London Hospital

210: ENDOSCOPIC ENDONASAL RECONSTRUCTION OF HIGH FLOW CEREBROSPINAL FLUID LEAK WITH FASCIA LATA BUTTON GRAFT AND NASOSEPTAL FLAP: SURGICAL TECHNIQUE AND CASE SERIES - Roshti Khatiwala, Maria Peris-Celda, MD, PhD, Tyler Kenning, Carlos Pinheiro-Neto; 1Albany Medical College, 2Division of Otolaryngology / Head and Neck Surgery, Department of Surgery, Albany Medical Center

12:00 pm – 12:30 pm 2018 Meeting Closing Ceremony

SPEAKERS: Ian Witterick, MD, MSc, FRCSC; Zoukaa Sargi, MD; Amir Dehdashti, MD; James Evans, MD
Exhibit Hall Floor Plan

Booth Assignments

100  OsteoMed
101  Mizuho America, Inc.
102  Surgical Theater
103  Carl Zeiss Meditec, Inc.
107  SPIWay, LLC
200  KARL STORZ Endoscopy, Inc.
201 & 203  Medtronic
202  Synaptive Medical
205  pro med instruments
206  Haag-Streit USA
207  KLS Martin
300  Elekta
301, 303 & 305  Stryker
302  Cook Medical
304  NICO Corporation
306  Codman Special Surgical
307  Apex Medical, Inc.
400  Olympus America, Inc.
401  DePuy Synthes
402  Brainlab
404  TAKAYAMA Instrument, Inc.
405  Sutter Medical USA
406  Leica Microsystems
407  Zimmer Biomet
500  Natus Neuro
501  NSK America Corp.
502  Kirwan Surgical Products
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504  Thieme Medical Publishers
Exhibitor Profiles

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WEB: www.integralife.com

**Cook Medical**
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Cook Medical, a global pioneer in medical breakthroughs, launched an Otolaryngology/Head & Neck Surgery (OHNS) clinical division in 2012 after recognizing the need for better minimally invasive products and procedures in otolaryngology. Today, product development and improvement is focused on soft tissue repair, obstructive salivary gland disease, chronic sinusitis, vocal fold paralysis, obstructive sleep apnea, and interventional airway and esophageal procedures.

**DePuy Synthes**
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Elekta’s solutions are used to improve, prolong and save lives of people with cancer and brain disorders. Products include Gamma Knife® Icon™, which provides clinically-proven, unmatched precision with 2x-4x better sparing of normal brain tissue and Vantage™ Stereotactic System, the company’s latest-generation system for target localization and coordinate referencing for precision neurosurgery.

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**Hyperbranch Medical Technology, Inc.**
800-12 Capitola Drive
Durham, NC 27713
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**P056: CLINICAL OUTCOMES FOLLOWING ENDOSCOPIC ENDONASAL SURGERY FOR ANTERIOR CRANIAL BASE MENINGIOMAS** - Zain H Rizvi, MD; Marvin Bergsneider, MD; Jeffrey D Suh, MD; Jose E Alonso, MD; Marilene B Wang, MD; UCLA Department of Head and Neck Surgery; UCLA Department of Neurosurgery

**P057: EARLY EXPERIENCE WITH ENDOSCOPIC ENDONASAL TECHNIQUES FOR SKULL BASE PATHOLOGIES AT A REFERRAL CENTRE IN COLOMBIA: MULTIDISCIPLINARY TEAM APPROACH IMPLEMENTATION** - Nicolas Gil Guevara, MD; Javier Andres Ospina Diaz, MD; Esteban Ramirez Ferrer, MD; Maria Camila Pedraza Ciro, MD; Camilo Zubieta Vega, MD; Pedro Jose Penagos Gonzalez, MD; National Cancer Institute, Vancouver General Hospital & St. Paul’s Hospital’s University of British Columbia

**P058: ENDOSCOPIC TRANNASAL RESECTION OF HYPOTHALAMIC PILOCYTIC ASTROCYTOMA** - Ziyad Al-Aijan; Sarah Bin Abdulqader; Mohammed Al-Bar; Wissam Issawi; Saad Alsaleh; Pablo Recinos; Abdurazag Aijan; King Saud University; Imam Abdulrahman Bin Faisal University; Cleveland Clinic

**P059: ENDOSCOPIC ENDONASAL SURGERY FOR ERDHEIM-CHESTER OF THE CLIVUS: A CASE REPORT** - Alaa Montaser, MD; Daniel M Prevedello, MD, Bradley A Otto, Ricardo L Carrau, MD; The Ohio State University Wexner Medical Center

**P060: EXTENDED ENDOSCOPIC ENDONASAL CLIPPING OF BASILAR APEX ANEURYSMS: ANATOMICAL COMPARATIVE STUDY AND SURGICAL SIMULATION** - Alaa S Montaser, MD, Juan R Revuelta Barbero, Mostafa Shahein, MD, Juan C Yanez-Siller, MD, MPH, Daniel M Prevedello, MD, Bradley A Otto, Ricardo L Carrau, MD; The Ohio State University Wexner Medical Center

**P061: ENDOSCOPIC ENDONASAL RESECTION OF CONCOMITANT PITUITARY ADENOMA AND RATHKE’S CLEFT CYST: A CASE REPORT AND REVIEW OF LITERATURE** - Alaa S Montaser, MD, Daniel M Prevedello, MD, Bradley A Otto, Ricardo L Carrau, MD; The Ohio State University Wexner Medical Center

**P062: ENDOSCOPIC ENDONASAL MULTIMODULAR APPROACH FOR RESECTION OF CONCOMITANT TRIGEMINAL SCHWANNOMA AND PITUITARY ADENOMA: A SINGLE CORRIDOR FOR DIFFERENT PATHOLOGIES** - Alaa S Montaser, MD, Daniel M Prevedello, MD, Bradley A Otto, Ricardo L Carrau, MD; The Ohio State University Wexner Medical Center

**P063: SINGLE CENTER EXPERIENCE IN RESECTION OF PITUITARY ADENOMAS WITH HIGH GRADE Cavernous SINUS INVASION** - Aaron Plitt, MD; Arjun Aggarwal, Samuel Barnett, MD; UT Southwestern

**P064: COMBINED ENDOSCOPIC ENDONASAL & SUBLABIAL APPROACH TO GIANT SOLITARY FIBROUS TUMOR INVOLVING THE MAXILLA, CENTRAL SKULL BASE, AND PARAPHARYNGEAL SPACES: A CASE STUDY** - Christine Settoon, Daniel W Nuss, MD, Michael DiLeo, MD; LSU School of Medicine, New Orleans
Poster Sessions

Posters will be displayed during all exhibit hall hours in the exhibit room.

P065: ENDOSCOPIC SKULL BASE SURGERY IN THE ELDERLY POPULATION: THE EFFECT OF PATHOLOGY ON OUTCOMES - Elizabeth D Stephenson, BA1, Maheer M Masood, BA1, Douglas R Farquhar, MD, MPH2, Katherine Adams, BS1, Saangyoung E Lee, BS1, Parth V Shah, MD2, Charles S Ebert, Jr, MD, MPH3, Brian Thorp, MD3, Matthew Ewend, MD4, Adam M Zanation, MD2; 1University of North Carolina School of Medicine, 2Department of Otolaryngology - Head and Neck Surgery, University of North Carolina at Chapel Hill, 3Department of Neurosurgery, University of North Carolina at Chapel Hill

P066: ABDOMINAL FAT GRAFT FOR RECONSTRUCTION OF THE ANTERIOR SKULL BASE FOR ENDONASAL TRANSPHENOIDAL SURGERY: TECHNIQUE AND OUTCOMES - Elena Roca, MD1, William T Burke, BS2, David L Penn, MD, MS3, Mina G Safain, MD2, Joseph P Castlen, BS2, Edward R Laws, MD2; 1University of Brescia, Brescia, Italy, 2Brigham and Women's Hospital, Harvard Medical School, Boston, MA

P067: CHONDROSARCOMA IN THE PETROUS APEX: CASE REPORT AND REVIEW - Fatmahalzahra Rushdi Banaz, MD1, Ioana D Moldovan, MD, MSc2, Shaun J Kilty, MD, FRCSC3, Gerard Jansen, MD, FRCPC4, Fahad Alkherayf, MD, MSc, CIP, FRCSC2; 1The Ottawa Hospital, 2The Ottawa Hospital/The Ottawa Hospital Research Institute, 3The Ottawa Hospital/University of Ottawa/Ther Ottawa Hospital Research Institute

P068: TRANSFRONTAL ENDONASAL RECONSTRUCTION OF ANTERIOR SKULL BASE WITH PERICRANIAL FLAP WITHOUT CRANIOTOMY: TECHNICAL NOTE - Carlos T Chone, MD, PhD, Wesley N Sousa, MD, Mayara Tabai, MD, Gabriela M Ichiba, MD, Helder Tedeschi, MD, PhD, Yvens B Fernandes, MD, PhD, Guilherme V Coelho, MD, Eulalia Sakano, MD, PhD, Agricio N Crespo, MD, PhD, Marcelo H Sampaio, MD, PhD, Jorge R Paschoal, MD, PhD; University of Campinas

P069: ENDOSCOPIC MANAGEMENT OF ANTERIOR SKULL BASE LESIONS: EXPERIENCE OF TERTIARY CARE CENTRE IN INDIA - Preetam Chappity, MS, DNB, MNAMS, Dilip Samal, MS, Anjan Sahoo, MS, Saurav Sarkar, MS, Pradeep Pradhan, MS, Pradipta Parida, MS, AllIMS (All India Institute of Medical Sciences) Bhurbanwar

P070: NOVEL APPLICATION OF STERILIZED ELUTING STENT IN PETROUS APEX CHOLESTEROL GRANULOMA APPROACHED ENDONASALLY: A CASE SERIES - Ralph Abi Hachem, MD, David Jang, MD, Kevin Choi, MD, Ali Zomorodi, MD, Patrick Codd, MD, Allan Friedman, MD, Tawfiq Khoury, MD; Duke university

P071: ENDOSCOPIC ENDONASAL RESECTION OF A LACRIMAL DUCT ONCOCYTOMA - Sarah K Rapoport, MD1, Jennifer R Cracchiolo, MD2, Sasan Karimi, MD3, Brian P Marr, MD2, Marc A Cohen, MD, MPH2; Medstar Georgetown University Hospital, 1Memorial Sloan Kettering Cancer Center

P072: ENDOSCOPIC NASOPHARYNGECTOMY COMBINED WITH A NERVE-SPARING TRANSPTERYGOID APPROACH: AN ANATOMIC STUDY - Mathew Geltzeiler, MD1, Meghan Turner, MD2, George Zenonos, MD2, Andrea Hebert, MD2, Carl Snyderman, MD2, Paul Gardner, MD2, Juan Fernandez-Miranda2, Eric W Wang2; 1Oregon Health & Science University, 2University of Pittsburgh Medical Center

P073: EXAMINING SKULL BASE SURGEON PRACTICE PATTERNS FOR PATIENTS WITH OSA UNDERGOING SKULL BASE SURGERY - David Choi, MD, Kesava Reddy, MD, FRCSC, Doron Sommer, MD, FRCSC, Mcmaster University

P074: EXTENDED ENDOSCOPIC ENDONASAL TRANSCLIVAL APPROACH FOR TUMORS OF PETROCLIVAL REGION: PRELIMINARY EXPERIENCE - Mauro Dobrani, MD, Lucia Giovanna Maria Di Somma, Maurizio Gladi, Valentina Liverotti, Martina Delia Costanza, Alessandra Marini, Maurizio Iacoangeli, Stefano Dallari, Massimo Scerrati; 1Department of Neurosurgery, Section of Minimally Invasive and Skull Base Surgery, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy, 2Department of ENT, Murri Hospital, Fermo, Italy

P075: TWELVE YEAR DELAYED MALIGNANT TRANSFORMATION OF A VESTIBULAR SCHWANNOMA AFTER RADIOSURGERY - Ghaith Habboub, MD, Louis Ross, MD, Shahed Tish, MD, Pablo F Recinos, MD; Cleveland Clinic

P076: RADIATION INDUCED CNS PLEOMORPHIC SARCOMA AFTER ADJUVANT THERAPY FOR GLIOMA - William Clifton, MD1, Amal Shukri, MD1, Mike Rutenberg, MD, PhD2, Raafat Makary, MD, PhD2, Daryoush Tavanaiepour, MD2; 1Mayo Clinic Florida, 2UF Health Jacksonville

P077: NUMEROUS SEVERE LONG-TERM SEQUELAE OF SKULL BASE PROTON BEAM RADIATION FOR INFANTILE CLIVAL CHORDOMA: AN ILLUSTRATIVE CASE REPORT - John E Hanks, MD, Kevin J Kovatch, MD, Syed A Ali, MD, Emily Z Stucken, MD, Matthew E Spector, MD, Erin L McKean, MD; University of Michigan Otolaryngology Head and Neck Surgery

P078: REVISITING THE SELECTIVE VESTIBULAR NEUROTOMY FOR INTRACTABLE MÉNIÈRE’S DISEASE IN THE ERA OF ENDOSCOPY AND INTRAOPERATIVE ADVANCED NEUROMONITORING - Fabrizio Salvinelli, Maurizio Iacoangeli, Davide Nasi, Manuele Casale, Fabio Greco, Francesco Capuano, Massimo Scerrati, Minotti Giorgio; 1Department of ENT and Skull Base Surgery, University Campus Biomedico, Rome, Italy, 2Department of Neurosurgery, Section of Minimally Invasive and Skull Base Surgery, Università Politecnica delle Marche, Umberto I General Hospital, Ancona, Italy, 3Department of Medicine and Center for Drug Science, University Campus Biomedico, Rome, Italy
Poster Sessions

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P079: BRAIN STEM Cavernous Malformations: Operative Nuances of a Less Invasive Resection Technique - Harminder Singh1, Turki Elarjani2, Harley Brito da Silva3, Rakshith Shetty2, Louis Kim1, Laligam N Sekhar1; 1Stanford University, 2University of Washington

P080: Perineural Spread of Squamous Cell Carcinoma to the Skull Base Following Treatment of Oropharyngeal P16-Positive Squamous Cell Carcinoma: A Case Series - Andrea M Hebert, MD, MPH1, Leila J Mady, MD, PhD, MPH1, Mathew N Geltzeiler, MD1, Meghan T Turner, MD1, Carl H Snyderman, MD, MBA1, Paul A Gardner, MD1, Juan C Fernandez-Miranda, MD2, Eric W Wang, MD1; 1Department of Otolaryngology, University of Pittsburgh School of Medicine, 2Department of Neurological Surgery, University of Pittsburgh School of Medicine

P081: Novel Approach Using Transoral Robotic Surgery for Resection of Cervical Spine Chordoma - Ahmad F Mahmoud, MD1, Adam McCann, MS2, Neil R Malhotra, MD1, Bert W O’Malley, Jr, MD1; 1University of Pennsylvania, 2University of Kansas School of Medicine

P082: Retropharyngeal Arteriovenous Malformation - Christopher M Low, MD, Kathryn M Van Abel, Daniel L Price, MD, Kerry D Olsen, MD; Mayo Clinic

P083: Optical Coherence Tomography for the Management of Fibrous Dysplasia of the Skull Base with Optic Nerve Involvement - Joshua Loewenstein, Christopher Hernandez, Carolyn Chadwick, Amish Doshi, MD, Rudrani Banik, MD, Christopher Sarkiss, MD, Joshua Bederson, MD, Raj K Shrivastava, MD; Icahn School of Medicine at Mount Sinai

P084: Diverticula of the Superior Petrosal Sinus Leading to Superior Semicircular Canal Dehiscence - Alex D Sweeney, MD1, Brendan O’Connell, MD2, Neil Patel, MD2, Nicole M Tombers, MD2, George B Wanna, MD2, John I Lane, MD2, Matthew L Carlson, MD2; 1Baylor College of Medicine, 2Vanderbilt University School of Medicine

P085: Temporal Bone Paraganglioma Presenting as a Bezold’s Abscess and Necrotizing Fasciitis - Tanner Fullmer, MD, Vlad C Sandulache, MD, Kate O’Connor, MD, Maheshwar Ramineni, MD, Alex D Sweeney, MD; Baylor College of Medicine

P086: Structured Light Scanning of an Anatomical Model for Preoperative Planning of Cavernous Sinus Surgery: An Illustrative Case - Roberto Rodriguez, MD, Olivia Kola, Sheantel Reihl, Ethan Winkler, MD, PhD, Arnau Benet, MD, Ivan El-Sayed, MD, Adib A Abla, MD; University of California, San Francisco

P087: Sarcoidosis Presenting as Unilateral Dacryocystitis and Nasolacrimal Duct Obstruction - Devin Ruiz, MD1, Elie Rebeiz, MD1, Alison Callahan, MD2; 1Tufts Medical Center, 2New England Eye Center

P088: Anterior Clival Mucocoele Causing Peripheral Visual Field Defect: Case Report, Pathogenesis and Surgical Treatment - Alexandre B Todeschini, MD, Alaa Montaser, MD, Daniel M Prevedello, MD; The Ohio State University

P089: Visual System Manifestations of Cerebral Venous Sinus Thrombosis - Justin N Karlin, MD, MSc, Elizabeth Thompson, MD, MPH, Steven A Newman, MD; University of Virginia

P090: Management Challenges in an Unusual Case of Malignant Otitis Externa and CLL Associated with Multiple Head and Neck Cutaneous SCCs - Hammaad Khan, Matthew Jaffa, Melanie Dowling, Vikas Malik; Department of Otolaryngology, Blackpool Teaching Hospitals NHS Foundation Trust, Blackpool, United Kingdom

P091: Radiological Study of the Ethmoid Preservation During the Endoscopic Superior Ethmoidal Approach Compared to the Traditional Endoscopic Anterior Cranial Base Approach to Intracranial Pathologies - Salman Syed1, Maria Peris-Celda, MD, PhD2, Tyler Kenning, MD, PhD2, Carlos D Pinheiro-Neto, MD, PhD2; 1Albany Medical College, 2Department of Neurosurgery, Albany Medical Center, Division of Otolaryngology / Head and Neck Surgery, Department of Surgery, Albany Medical Center

P092: Use of Ultrasound for Navigating the Internal Carotid Artery in Revision Endoscopic Endonasal Skull Base Surgery - Jonathan P Giurintano, MD, Jose Gurrola II, MD, Philip Theodosopoulos, MD, Ivan El-Sayed, MD, FACS; UCSF Medical Center

P093: Direct Puncture Embolization for Intracranial Glomus Jugulare Tumor: Technical Note and Literature Review - Ribhu T Jha, MD1, Tianzan Zhou, MD1, Nicholas Dietz, MD2, Michael McCollough, MD1, Andrew B Stermer, MD1, Amjad N Anaizi, MD1; 1MedStar Georgetown University Hospital, 2Georgetown University School of Medicine

P094: Contributions of a High-Definition, 3-D Exoscope System for Skull Based Microneurosurgical Resident and Fellow Education - Jeffrey Steinberg, MD, Jayson Sack, Reid Hoshide, MD, Robert Rennert, MD, Dustin Hatefi, MD, Alexander Khalessi, MD; Michael L Levy, MD, PhD; UCSD
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P095: CONTRALATERAL SUPRACEREBELLAR-INFRATENTORIAL APPROACH FOR RESECTION OF THALAMIC CAVERNOUS MALFORMATIONS - Justin Mascitelli1, Jan-Karl Burkhardt2, Sirin Gandhi3, Michael Lawton1;1BNI, 2NYU Langone, 3Case Western Reserve University

P096: COCHLEAR IMPLANTATION CONCURRENT WITH VESTIBULAR SCHWANNOMA RESECTION - Kent S. Tadokoro, MD, Matthew Kircher, MD; Loyola University Medical Center

P097: ENDOSCOPIC ENDOASAL RESECTION OF ORBITAL APEX SCHWANNOMA; A CASE REPORT AND REVIEW OF THE LITERATURE - Edward Westfall, MD, Chirag Patel; Loyola University Medical Center

P098: ROBOTIC EXOSCOPIC RESECTION OF PITUITARY TUMORS - Robert A Scranton, MD1, Brandon Liebelt, MD1, Masayoshi Takashima, MD2, Gavin W Britz, MD3;1Houston Methodist Neurological Institute, 2Baylor College of Medicine

P099: STEROID ELUTING STENTS IN THE TREATMENT OF RECURRENT RATHKE’S CLEFT CYST - Elisabeth H. Ference1, Karam W Badran2, Edward C Kuan3, Marvin Bergsneider4, Marilene B Wang5;1Rick and Tina Caruso Department of Otolaryngology-Head and Neck Surgery, Keck School of Medicine of the University of Southern California, 2Department of Otolaryngology-Head and Neck Surgery, David Geffen School of Medicine of the University of California, Los Angeles, 3Department of Otorhinolaryngology-Head and Neck Surgery, University of Pennsylvania, 4Department of Neurosurgery, David Geffen School of Medicine of the University of California, Los Angeles

P100: NASAL FLOOR RECONSTRUCTION FOLLOWING ENDOSCOPIC ENDOASAL SURGERY USING AN INFERIORLY-PEDICLED NASOSEPTAL FLAP - Jan J Koszewski, MD, Lucas Leonard, MD, Azam Ahmed, MD, Timothy M McCulloch, MD; University of Wisconsin

P101: THE ROLE OF THE EXPANDED ENDOASAL ENDOASAL APPROACH IN STAGED SURGERY FOR GIANT OLFACTORY GROOVE MENINGIOMA: TECHNICAL NUANCES - Alaa S Montaser, MD, Matias Gomez, MD, André Beer-Furlan, MD, Daniel M Prevedello, MD, Bradley A Otto, MD, Ricardo L Carrau, MD; The Ohio State University Wexner Medical Center

P102: ENDOASAL TRANS-CANAL APPROACH TO LATERAL SKULL BASE LESIONS - Preetam Chappity, MS, DNB, MNAMS, Dilip Samal, MS, Anjan Sahoo, MS, Saurav Sarkar, Pradeep Pradhan, MS, Pradipita Parida, MS; All India Institute of Medical Sciences (AIIMS), Bhubaneswar

P103: AUTOLOGOUS FASCIA-BONE-FASCIA TECHNIQUE FOR TEGMEN REPAIR - Clifford S Brown, MD, Calhoun D Cunningham III, MD; Duke University Medical Center

P104: ENDOASAL SUTURING OF NASOSEPTAL FLAP TO THE NASOPHARYNGEAL FASCIA USING THE V-LOC-WOUND CLOSING DEVICE - Nathan T Zwagerman, MD1, Mathew N Geltzeiler, MD2, Eric W Wang, MD2, Juan C Fernandez-Miranda, MD, Carl H Snyderman, MD, MBA2, Paul A Gardner, MD1;1Department of Neurological Surgery, University of Pittsburgh School of Medicine, 2Department of Otolaryngology, University of Pittsburgh School of Medicine

P105: SURGICAL PLANNING OF TEMPORAL BONE SKULL BASE DEFECTS USING 3-D PATIENT SPECIFIC MODELS - Carleton Eduardo Corrales, MD1, Jayender Jagadeesan, PhD1, Angela L Zhang2;1Brigham and Women’s Hospital, 2Cornell University

P106: COBLATOR USE IN ENDOASAL AND TRANSCRANIAL NEUROSURGICAL PROCEDURES - Shahed Tish, MD, Ghaith Habboub, MD, Varun Kshettry, MD, Troy Woodard, MD, Pablo Recinos, MD; Cleveland Clinic

P107: THE VIDIAN-EUSTACHIAN WINDOW: DESCRIBING THE ENDOASAL APPROACH TO THE JUGULAR FORAMEN WITHOUT TRANSPOSITION OR RESECTION OF THE EUSTACHIAN TUBE - Maria Peris-Celda, MD, PhD1, Christopher S Graffeo, MD1, Lucas P Carlstrom, MD, PhD1, Avital Perry, MD1, Carlos D Pinheiro-Neto, MD, PhD2, Michael J Link, MD1;1Department of Neurosurgery Mayo Clinic, Rochester, MN, 2Division of Otolaryngology Albany Medical College, Albany, NY

P108: ENDOASAL DOUBLE FLAP TECHNIQUE FOR RECONSTRUCTION OF LARGE ANTERIOR SKULL BASE DEFECTS: TECHNICAL NOTE - Ricardo Dolci, MD1, Alexandre B Todeschini, MD2, Américo Dos Santos, PhD1, Paulo Lazarini, PhD1;1Irmandade da Santa Casa de Misericórdia de São Paulo, 2The Ohio State University

P109: S INCISION: A NOVEL INCISION FOR FAR LATERAL APPROACHES - Alexandre B Todeschini, MD1, Daniel M Prevedello, MD1, Andre Beer-Furlan, MD2, Russel Lonser, MD, PhD3;1The Ohio State University, 2Rush University Medical Center

P110: RELIEVING BRAINSTEM COMPRESSION SECONDARY TO VERTEBROBASILAR DOLICHOECTASIA USING A CAROTID PATCH GRAFT SLING AND ANTEROLATERAL MOBILIZATION: A TECHNICAL NOTE - Jesse J Liu, MD, Aclan Dogan, MD, Justin S Cetas, MD, PhD1;1Oregon Health & Science University

P111: UTILIZATION OF THE CONTRALATERAL TRANSMAXILLARY APPROACH FOR CHORDOMA AND CHONDROSARCOMA OF THE PETROUS APEX - Daniel L Faden, MD, Philippe F Lavigne, MD, Juan C Fernandez-Miranda, MD, Paul A Gardner, MD, Eric W Wang, MD, Carl H Snyderman, MD, MBA; UPMC
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P112: THE ANTERIOR SUBCALLOSAL APPROACH AS AN APPROACH TO THE THIRD VENTRICULAR AND SUPRASELLAR LESIONS - Gavin W Britz, Professor, Department of Neurosurgery, Brandon Liebalt, Robert Scranton, MD; Houston Methodist

P113: INDOCYANINE GREEN ENDOSCOPIC VIDEO ANGIOGRAPHY TO ASSESS NASOSEPTAL FLAP VASCULAR PERFUSION IN SKULL BASE RECONSTRUCTION - Vanessa C Stubbs, MD, Edward C Kuan, MD, MBA, Michael A Kohanski, MD, PhD, Carol H Yan, MD, Jason G Newman, MD, James N Palmer, MD, Nithin D Adappa, MD, John Y Lee, MD, MSCE, 1Hospital of the University of Pennsylvania, 2Stanford University

P114: NEURONAVIGATION FOR TRIGEMINAL RHIZOTOMY - Meena Thatikunta, MD, Jessica Eaton, BA, Haring Nauta, MD, PhD; University of Louisville

P115: CHRONIC EPIDURAL PNEUMOCEPHALUS DUE TO HYPERPNEUMATIZATION OF THE TEMPORAL BONE: SEQUELAE, SURGICAL MANAGEMENT AND LONG TERM FOLLOW-UP - Catherine T Haring, MD, Kevin J Kovatch, MD, Kristen Angster, MD, Steven A Telian, MD; University of Michigan, Department of Otolaryngology-Head and Neck Surgery

P117: PARTIAL RESECTION OF JUGULAR FORAMEN TUMORS: IMPROVED OUTCOMES WITH FACIAL NERVE PROTECTION USING SILICONE SHEETING - Ryan A McMullen, Alison Kartush, MD, John P Leonetti, MD; Loyola Stritch School of Medicine, 1Loyola University Medical Center

P118: MANAGEMENT OF STAGE IV CARCINOMA OF TEMPORAL BONE: INSTITUTIONAL EXPERIENCE - Preetam Chappity, MS, DNB, MNAMS, Dilip Samal, MS, Anjan Sahoo, MS, Saurav Sarkar, MS, Pradeep Pradhan, MS, Pradipta Parida, MS; All India Institute of Medical Sciences (AIIMS) Bhubaneshwar

P119: DISORDERS INVOLVING THE JUGULAR FORAMEN: A HISTOLOGY-DRIVEN TREATMENT STRATEGY - Elisabetta Zanoletti, Diego Cazzador, Enrico Alexandre, Domenico D'avella, Alessandro Martini, Antonio Mazzoni, Department of Neurosciences, Section of Otorhinolaryngology- Head and Neck Surgery, University of Padova, Padova, Italy, 1Department of Neurosciences, Unit of Neurosurgery, University of Padua, Padua, Italy

P120: RECURRENT FACIAL PARALYSIS SECONDARY TO CONGENITAL CHOLESTEATOMA - Matthew R Bartindale, MD, John P Leonetti, MD; Loyola University Medical Center

P121: RECURRENT CHOLESTEROL GRANULOMA SECONDARY TO DELAYED EXTRUSION OF ENDOVASCULAR COIL OF A PSEUDOANEURYSM - Shiayin F Yang, MD, Matthew Bartindale, MD, John Leonetti, MD; Loyola University Medical Center

P122: IDENTIFYING AND EVALUATING THE IMPACT AND IMPLICATIONS OF COLLABORATIVE MULTIDISCIPLINARY CARE IN SKULL BASE TREATMENT: RETROSPECTIVE ANALYSIS AND LITERARY REVIEW - Perry T Mansfield, MD, FRCSC, Hannah G Goldman, Kathryn M Liang; Senta Clinic

P123: METASTATIC ESTHESIONEUROBLASTOMA: A SYSTEMATIC REVIEW & META-ANALYSIS - John P Marinelli, BS, Jeffrey R Janus, MD, Jamie J van Gompel, MD, Michael J Link, MD, Christine M Lohe, MS4, Robert L Foote, MD, Katharine A Price, MD, Ashish V Chintakuntlawar, MBBS, PhD; Mayo Clinic School of Medicine, 1Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester MN, 2Department of Neurosurgery, Mayo Clinic, Rochester MN, 3Department of Biomedical Statistics and Informatics, Mayo Clinic, Rochester MN, 4Department of Radiation Oncology, Mayo Clinic, Rochester MN, 5Division of Medical Oncology, Mayo Clinic, Rochester MN

P124: ENDOSCOPIC TRANNASAL RESECTION OF MIDLINE SKULL BASE MENINGIOMA: TUMOR CONSISTENCY AND SURGICAL OUTCOME - Aljohara Aldahish, Sajjad Hussain, Abdulrahman Albaker, Ahmad Alroqi, Saud Alromaih, Saad Alsaleh, Abdulrazag Ajlan, Ziyad Abdulaziz Alailan; King Saud University

P125: RECURRENT PLANUM SPHENOIDALE MENINGIOMA PRESENTING AS NASAL MASS - Katherine Lees, MD, Janalee K Stokken, MD; Mayo Clinic

P126: RACIAL DIFFERENCES IN DISEASE PRESENTATION AND MANAGEMENT OF INTRACRANIAL MENINGIOMA - Charles Anzalone, MD, Amy Glasgow, MHA, Elizabeth Habermann, PhD, MPH, Jamie van Gompel, MD, Brandon Grossardt, MS, Matthew Carlson, MD; Mayo Clinic

P127: IS HOSPITAL VOLUME A DETERMINANT FOR IMPROVED OUTCOMES IN MENINGIOMA SURGERY? AN ANALYSIS ACROSS NEW YORK STATE - Anthony Yang, Sean McKee, Patrick Colley, Joshua Bederson, Alfred Illoreta, Raj Shrivastava, MD; Icahn School of Medicine at Mount Sinai

P128: THE RELEVANCE OF SIMPSON GRADE RESECTIONS IN THE MODERN NEUROSURGICAL TREATMENT OF WORLD HEALTH ORGANIZATION GRADE 1, 2, AND 3 MENINGIOMAS - Jeff Ehresman, BS, Tomas Garzon-Muvdi, MD, Davis Rogers, BA, Michael Lim, MD, Gary L Gallia, MD, PhD, Jon Weingart, MD, Henry Brem, MD, Chetan Bettegowda, MD, PhD, Kaisorn L Chaichana, MD; Johns Hopkins University School of Medicine
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**P129: ANALYSIS OF RECURRENT RATES IN WHO GRADE 1 MENINGIOMA'S WITH ELEVATED KI-67 LABELING INDEX** – Gabrielle Matias, Vikram C Prabhu, MD, Stritch School of Medicine, Loyola University Chicago, 2Loyola University Medical Center

**P130: CHARACTERISTIC OF OPTIC CANAL INVASION IN 31 CONSECUTIVE CASES WITH TUBERCULUM SELLAE MENINGIOMA** – Kenji Ohata, MD, PhD, Pree Nimmannitya, MD, Kousuke Nakajo, MD, Hiroki Morisako, MD, PhD, Takeo Goto, MD, PhD, Osaka City University Department of Neurosurgery, 2Thammasat University Department of Neurosurgery

**P131: MIDDLE CRANIAL FOSSA APPROACH FOR REPAIR OF TEMPORAL BONE DEFECTS** – Daniel B Eddelman, MD, Stephan Munich, MD, Mike Eggerstedt, MD, Roham Moftakhar, MD, Lorenzo Munoz, MD, Rich Byrne, MD, R M Wiet, MD, Rush University Medical Center

**P132: EARLY REPAIR OF FRONTOETHMOIDAL ENCEPHALOCELES REVERSES ABNORMAL FRONTAL BONE DEVELOPMENT** – Paramita Das, MD, Martin Lacey, MD, Cleveland Clinic, 2HealthPartners Medical Group

**P134: SURGICAL RESECTION OF PINEAL CYST FOR INTRACTABLE HEADACHE: AN EVOLVING CONCEPT?** – Wenya Linda Bi, MD, PhD, Ian F Dunn, MD, Brigham and Women’s Hospital

**P135: SURGICAL LIMITATIONS OF THE SUPRAORBITAL EYEBROW APPROACH: FROM THE ANTERIOR FOSSA TO THE MIDDLE FOSSA** – Hamid Borghesi-Razavi, MD, PhD, Xiong Wenping, MD, Huy Q Truong, MD, David T Fernandez Cabral, MD, S. Tonya Stefko, MD, Juan C Fernandez-Miranda, MD, Paul A Gardner, MD, Surgical Neuroanatomy Lab, UPMC Center for Cranial Base Surgery, 2Department of Neurological Surgery, University of Pittsburgh School of Medicine, 3Department of Ophthalmology, University of Pittsburgh School of Medicine

**P136: RATHKE’S CLEFT CYST PRESENTING SYNCHRONOUSLY WITH A DIAPHRAGMA SELLAE MENINGIOMA** – Ali Jamshidi, Alice Wang, MS, Ronald Sahyouni, MS, George Hanna, MD, Nathan Oh, MD, Frank Hsu, MD, PhD, UC Irvine Medical Center

**P137: A CASE OF ORBITAL RHABDOMYOSARCOMA IN ADULT** – Tai Jung Park, MD, Seok Kim, MD, Jung Suk Kim, MD, Tae Young Jung, MD, Maryknoll Medical Center

**P138: TRANSNASAL ENDOSCOPIC OPTIC DECOMPRESSION AS THE INITIAL MANAGEMENT OF PRIMARY OPTIC NERVE SHEATH MENINGIOMAS** – Guillermo Maza, MD, Somasundaram Subramaniam, MD, Juan C Yanez-Siller, MD, MPH, Bradley A Otto, MD, Daniel M Prevedello, MD, Ricardo L Carrau, MD, FACS, 2Otolaryngology Department, Ohio State University, 2Neurosurgery Department, Ohio State University

**P139: TOO MUCH BONE** – Steven A Newman, MD, University of Virginia

**P140: ORBITAL PARAGANGLIOMA: A SYSTEMATIC REVIEW** – Natalie Huang, MD, Hani M Rayess, MD, Peter Svider, MD, Nadim Rayess, MD, Adam Folbe, MD, Paul Langer, Jean-Anderson Eloy, MD, Michael Carron, MD, Department of Otolaryngology – Head and Neck Surgery, Wayne State University School of Medicine, 2Roski Eye Institute, University of Southern California School of Medicine, Los Angeles, CA, 3Department of Otolaryngology – Head and Neck Surgery, William Beaumont Hospital, Royal Oak, MI, 4Department of Ophthalmology and Visual Science, Rutgers University New Jersey Medical School, Newark, NJ, 5Department of Otolaryngology-Head and Neck Surgery, Rutgers New Jersey Medical School, Newark, New Jersey, USA, 6Department of Neurological Surgery, Rutgers New Jersey Medical School, Newark, New Jersey, USA, 7Center for Skull Base and Pituitary Surgery, Neurological Institute of New Jersey, Newark, New Jersey, USA

**P141: CEREBROSPINAL FLUID LEAK REPAIRED WITH NASOSEPTAL FLAP IN A TWO-WEEK-OLD NEONATE** – Alan D Workman, Ivy W Mainga, Vasiliki Triantafillou, James N Palmer, MD, Nithin D Adappa, MD, Phillip B Storm, MD, Jordan T Glicksman, MD, University of Pennsylvania, 2Children’s Hospital of Philadelphia

**P142: EXTRAORDINARY PRESENTATIONS OF PEDIATRIC PITUITARY ADENOMA** – Soliman H Oushy, MD, Jenna Meyer, BS, Avital Perry, MD, Christopher S Graffeo, MD, Lucas Carlstrom, MD, PhD, Christopher Marcellino, MD, Maria Peris-Celda, MD, Anthony Burrows, MD, Fredric B Meyer, MD, The Mayo Clinic

**P143: OPEN AND ENDOSCOPIC TREATMENT OF PEDIATRIC FIBROUS DYSPLASIA CAUSING BLINDNESS AND PROPTOSIS** – Ali Jamshidi, MD, Alice Wang, MS, Ronald Sahyouni, MS, George Hanna, MD, Nathan Oh, MD, Frank Hsu, MD, PhD, UC Irvine Medical Center

**P144: SELLAR LYMPHOMA AND LEUKEMIA IN CHILDHOOD: A RARE ASSOCIATION** – Danielle De Lara, MD, Thiago Sonego, MD, Leandro J Haas, MD, Celso I Bernardes, Vitor Hugo T Boer, Luis Renato G Mello, Hospital Santa Isabel

**P145: PEDIATRIC INTRACAVERNOUS SINUS LESIONS: A SINGLE INSTITUTIONAL SURGICAL CASE SERIES** – Reid Hoshide, Robert Rennert, Mark Calayag, Michael Levy, UC-San Diego
Poster Sessions

Posters will be displayed during all exhibit hall hours in the exhibit room.

P146: A COMPARISON OF VISUAL OUTCOMES AFTER GROSS TOTAL OR SUBTOTAL RESECTION FOR GIANT PITUITARY MACROADENOMAS – Sasha Rogers, BSC, MBBS, MRCS, FRACS, Fiona Costello, MD, FRCPc, David Ben-Israel, MD, Won Hyung A Ryu, MD, MSc, Yves Starrevel, BSC, MD, PhD, FRCSC; Foothills Medical Centre/University of Calgary

P147: EXTRACAPSULAR PITUITARY MACROADENOMA RESECTION AND INTERNAL CAROTID ARTERY ANEURYSM CLIPPING VIA ENDOSCOPIC ENDONASAL APPROACH: TECHNICAL DESCRIPTION – Javier Ospina, MD, Arif Janjua, MD, FRCSC, Peter Gooderham, MD, FRCSC; University of British Columbia

P148: COMPARING OUTCOMES AFTER TRANNASAL PITUITARY SURGERY BASED ON SOCIOECONOMIC STATUS – Ashleigh A Halderman, MD, Arjun Aggarwal, Samel L Barnett, MD; University of Texas Southwestern

P149: ENDOSCOPIC ENDONASAL TRANSSPHENOIDAL RESECTION OF PITUITARY ADENOMAS: EVALUATION OF CONSECUTIVE CASES – Carlos T Chone, MD, PhD, Professor1, Eulalia Sakano, MD, PhD, Professor1, Marcelo H Sampaio, MDPhD1, Yvens B Ferandes, PhD2, Mateus Dal Fabbro, PhD2, Enrico Ghizoni, PhD, Professor2, Antonio A Vargas, PhD3, Jorge R Paschoal, PhD, Professor4, Heraldo M Garnes, PhD4, Helder Tedeschi, PhD, Professor2; 1Department of Otolaryngology Head and Neck, University of Campinas, Brazil, 2Department of Neurosurgery, University of Campinas, Brazil, 3Department of Neurological Surgery, Centro Medico Hospital, Brazil, 4Department of Endocrinology, University of Campinas, Brazil

P150: INITIAL EXPERIENCE WITH ENDOSCOPIC ENDONASAL APPROACH FOR THE TREATMENT OF CUSHING’S DISEASE IN A LARGE TERTIARY CENTER IN SÃO PAULO, BRAZIL – Alexandre B Todeschini, MD, Américo Dos Santos, PhD, Ricardo Dolci, MD, Paulo Roberto Lazarini, PhD, Jose V Lima Jr, MD, Nilza Scalissi, PhD, Mario Pagotto; Imandade da Santa Casa deMisericórdia de São Paulo

P151: THE PIT, A PENDULUM: NELSON-SALASSA SYNDROME MANIFESTING AS PITUITARY CARCINOMA – Lucas P Carlstrom, Christopher S Graffeo, Avital Perry, Christopher R Marcellino, Janalee K Stokken, Jamie J van Gompel; Mayo Clinic

P152: CLINICAL IMPLICATIONS OF GIANT PITUITARY ADENOMAS: SURGICAL APPROACH TO DIAGNOSIS AND ENDOCROME TREATMENT – James R Goodman, Dawn S Lim, Lakshmi Aggarwal, Cara M Fleseriu, Ryan Li, Randy Woltjer, Jeremy N Ciporen; Oregon Health & Science University

P153: DOUBLE PITUITARY ADENOMAS ARE MOST COMMONLY ASSOCIATED WITH GH- AND ACTH-SECRETING TUMORS: SYSTEMATIC REVIEW OF THE LITERATURE – Elizabeth Ogando-Rivas, MD, Andrew F Alalade, MBBS, FRCS, Jerome Boatey, MD, FWACS, Theodore Schwartz, MD, FACS; Weill Cornell Medical College

P154: ISOLATED CRANIAL NERVE VI PALSY IN PITUITARY APOPLEXY – Stephanie K Cheok, MD; Yale University

P155: DEVELOPMENT OF A CLINICAL SUPERIOR SEMICIRCULAR CANAL DEHISCENCE QUESTIONNAIRE – Daniel Azzam, BS1, Brittany L Voth, BS1, Natalie E Barnette, BS1, John P Sheppard, MS1, Thien Nguyen, BS1, Vera Ong1, Courtney Duong, BS1, John J Arsenault, BS1, Carlito Lagman, MD2, Quinton Gopen, MD2, Isaac Yang, MD2, 1Department of Neurosurgery, David Geffen School of Medicine of the University of California, Los Angeles, UCLA, 2Department of Head and Neck Surgery, David Geffen School of Medicine of the University of California, Los Angeles, UCLA, 3Departments of Neurosurgery, Head and Neck Surgery, David Geffen School of Medicine of the University of California, Los Angeles, UCLA, 4Departments of Neurosurgery, Head and Neck Surgery, Radiation Oncology, Jonsson Comprehensive Cancer Center, Los Angeles Biomedical Research Institute, Harbor-UCLA Medical Center, David Geffen School of Medicine of the University of California, Los Angeles, UCLA

P156: RELIABILITY AND CORRELATION WITH QUALITY OF LIFE OUTCOMES OF UNIFIED VISUAL FUNCTION SCALE – Serge Makarenko, MD1, Peter A Gooderham, MD, FRCSC2, Ryojo Akagami, MD, MHSc, FRCSC2; 1University of British Columbia, 2Vancouver General Hospital

P157: BIPHENOTYPIC SINONASAL SARCOMA WITH FOCAL RHABDOMYOBlastic DIFFERENTIATION: CASE REPORT OF A NEWLY DESCRIBED MALIGNANCY WITH A REVIEW OF THE LITERATURE – Ian J Koszewski, MD, Hermes G Garcia, MD, Mindy R Rabinowitz, MD, Gurston G Nyquist, MD, James J Evans, MD, Marc R Rosen, MD; Thomas Jefferson University

P158: SINONASAL NUCLEAR PROTEIN TESTIS (NUT) MIDLINE CARCINOMA: CASE REPORT WITH A REVIEW OF THE LITERATURE – Megan Le1, Ian Koszewski, MD1, Sanjeet Rangarajan, MD1, Hermes Garcia, MD1, Mindy Rabinowitz, MD1, Gurston Nyquist, MD1, James Evans, MD1, Marc Rosen, MD1; Thomas Jefferson University, 1University of Tennessee Health Science Center

P159: EXTRA-PRIMARY LOCAL RECURRENCE OF ESTHESIONEUROBLASTOMA: A CASE SERIES – Ivy W Maina1, Brooke M Su, MD, MPH1, Edward C Kuan, MD, MBA1, Charles C Tong, MD1, Michael A Kohanski, MD, PhD1, John Y Lee, MD1, Quang C Luu, MD1, Jason G Newman, MD1, James N Palmer, MD1, Nithin D Adappa, MD1; 1University of Pennsylvania, 2University of California, Los Angeles
Poster Sessions

Posters will be displayed during all exhibit hall hours in the exhibit room.

P160: SURGERY FOR TREATMENT OF PRIMARY SINONASAL MUCOSAL MELANOMA IN PATIENTS TREATED WITH SYSTEMIC IMMUNOTHERAPY FOR DISTANT DISEASE – Tiffany N Chao, MD; Edward C Kuan, MD; Ching L Tong, MD; Michael A Kohanski, MD, PhD; Michael S Grady, MD; James N Palmer, MD; Nitthin D Adappa, MD; Bert W O'Malley Jr, MD; ‘Department of Otorhinolaryngology - Head & Neck Surgery, University of Pennsylvania Health System, 2Department of Neurosurgery, University of Pennsylvania Health System

P161: UNUSUAL PRESENTATION OF NASOPHARYNGEAL ANGIOFIBROMA IN AN ELDERLY PATIENT – Neil N Patel, BA, BS; Alan D Workman, BA; Edward C Kuan, MD; MBA; Charles C L Tong, MD; Michael A Kohanski, MD; PhD; Michael D Feldman, MD, PhD; David W Kennedy, MD; Nitthin D Adappa, MD; James N Palmer, MD; University of Pennsylvania

P162: RADIOSURGERY FOR CATECHOLAMINE SECRETING JUGULAR PARAGANGLIOMAS – Neil S Patel, MD; Matthew L Carlson, MD; William F Young, MD; Neena Natt, MD; Robert L Foote, MD; Bruce E Pollock, MD; Michael J Link, MD; Mayo Clinic

P163: SURGICAL MANAGEMENT AND OUTCOMES OF INTRACRANIAL CHONDROMAS: A SINGLE INSTITUTE EXPERIENCE – Da Li, Jian-Cong Weng, Zhen Wu, Li-Wei Zhang, Jun-Ting Zhang; Beijing Tiantan Hospital, Capital Medical University

P164: DEMOGRAPHIC AND SOCIOECONOMIC CHARACTERISTICS OF PATIENTS WHO UNDERGO RESECTION OF SINONASAL MALIGNANCIES WITH SKULL BASE INVOLVEMENT IN THE UNITED STATES – Ashton E Lehmann, MD; Rosh K Sethi, MD, MPH; Regan W Bergmark, MD; Jennifer C Fuller, MD; Anuraag Parikh, MD; Derrick T Lin, MD; Stacey T Gray, MD; Massachusetts Eye and Ear Infirmary

P165: SOLITARY FIBROUS TUMOR/HEMANGIOPERICYTOMA MIMICKING A TRIGEMINAL SCHWANNOMA: CASE REPORT AND REVIEW OF THE LITERATURE – Carla V Valenzuela, MD; Richard J Perrin, MD, PhD; Michael R Chicone, MD; Jonathan McJunkin, MD; ‘Washington University School of Medicine, Department of Otolaryngology Head and Neck Surgery, 2Washington University School of Medicine, Department of Pathology and Immunology, 3Washington University School of Medicine, Department of Neurosurgery

P166: COEXISTENCE ACROMEGALY AND MULTIPLE MYELOMA – Frol Oksuz, MD; Ozgur Demir, MD; Fatih E Deniz, MD; Faruk Kutluturk, MD; ‘Gaziosmanpasa University, Department of Neurosurgery, 2Gaziosmanpasa University, Department of Endocrinology

P167: FISCH TYPE C VERSUS AN ENDOSCOPIC ENDONASAL APPROACH TO THE PETROUS CAROTID ARTERY: INDICATIONS, LIMITATIONS, AND EXAMPLES – Vijay Agarwal, MD; Eric Mason, MD; Jose Gurrola, MD; Giovanni Danesi, MD; Ben Panizza, Arturo Solares, MD; ‘Emory University Hospital, 2Ohio State University, 3University of California, San Francisco, 4Ospedale Papa Giovanni XXIII, 5Greenslopes Private Hospital

P168: HEMANGIOPERICYTOMA OF THE SKULL BASE MASQUERADING AS A MIDDLE EAR MASS: CASE REPORT AND LITERATURE REVIEW – Alexandra M Arambula; Matthew M Dedmon, MD, PhD; Brendan P O’Connell, MD; Robert J Yawn, MD; Scott Parker, MD; Reid C Thompson, MD; Alejandro Rivas, MD; ‘Vanderbilt University Medical Center, 2UNC-Chapel Hill

P169: EXTENSIVE OSTEOSARCOMA OF THE CRANIO-CERVICAL JUNCTION IN A YOUNG PATIENT: DIAGNOSIS AND TREATMENT CONSIDERATIONS – Jonas R Miller, MS; Daniel W Nuss, MD; FACS; Moises Arriaga, MD, MBA; FACS; LSU - New Orleans

P170: MANAGEMENT OF FACIAL NERVE SCHWANNOMA: A MULTICENTER STUDY OF 50 CASES – Adrien Eshraghi, Thomas Babcock, Natalie Oker, Emre OcaK, Adam Kravietz, Romain Kania; ‘University of Miami Miller School of Medicine, 2Service d’ORL et de chirurgie maxillo-faciale, Hôpital Lariboisière, Paris, France

P171: RECURRENT NASOPHARYNGEAL CARCINOMA: A SYSTEMATIC REVIEW AND COMPARISON OF ENDOSCOPIC AND OPEN RESECTION IN 1521 CASES – Quan Liu, MD; Hongmeng Yu, MD; Xicai Sun, MD; Jian-Cong Weng, MD; Department of Otolaryngology-Eye, Ear, Nose and Throat Hospital, Shanghai Medical College of Fudan University

P172: SINGLE-CENTER EXPERIENCE OF SOLITARY BONE PLASMACYTOMA OF THE VERTEBRAL COLUMN IN COMPARISON WITH EXTRAMEDULLARY PLASMACYTOMA OF THE SKULL BASE – S. Ahmed Ali, MD; Kevin J Kovatch, MD; John E Hanks, MD; Stephen E Sullivan, MD; Erin L McKeen, MD; ‘University of Michigan Health System

P173: RAPID ONSET FACIAL NERVE PARALYSIS IN A CHILD WITH ADVANCED STAGE SKULL BASE RHABDOMYOSARCOMA: A CASE REPORT AND LITERATURE REVIEW – Stuart H Curtis, MD; Alexander G Bien, MD, FACS; Vaibhav Chumbalkar, MD; Timothy Jennings, MD; ‘Albany Medical Center, 2Albany ENT and Allergy
Poster Sessions

Poster Sessions Posters will be displayed during all exhibit hall hours in the exhibit room.

P176: APPLICATION OF DRAF III FRONTAL SINUS TECHNIQUE IN TRANSNASAL SKULL BASE SURGERY – Hongmeng Yu, Xicai Sun, MD, Quan Liu, MD; Department of Otolaryngology, Eye, Ear, Nose and Throat Hospital, Shanghai Medical College of Fudan University

P177: GEOGRAPHIC DISTRIBUTION OF SKULL BASE MALIGNANCIES: USING SPATIAL EPIDEMIOLOGY TO BETTER UNDERSTAND THE ETIOLOGY RARE CANCERS – Jeffrey L Nadal, BA1, Erin L McKean, MD, MBA2; 1University of Michigan Medical School, 2Department of Otolaryngology-Head and Neck Surgery, University of Michigan

P178: HEMANGIOBLASTOMA OF THE CEREBELLOPONTINE ANGLE – Desmond A Brown, MD, PhD, Caterina Giannini, MD, PhD, Colin L Driscoll, MD, Michael J Link, MD; Mayo Clinic

P179: COLLET-SICARD SYNDROME ATTRIBUTABLE TO EXTRAMEDULLARY PLASMACYTOMA OF THE JUGULAR FORAMEN – Soliman H Qushy, MD, Christopher S Graffeo, MD, Avital Perry, MD, Lucas Carlstrom, MD, PhD, Jamie J van Gompel, MD; The Mayo Clinic

P180: HIGHLY VARIABLE PRESENTATION, NATURAL HISTORY, AND TREATMENT IN SINONASAL PHACOPHATIC MESENCHYMAL TUMORS: TWO MARKEDLY CONTRASTING CASES – John E Hanks, MD1, Kevin J Kovatch, MD1, Syed A Ali, MD1, Jonathan B McHugh, MD2, Erin L McKean, MD1; University of Michigan Otolaryngology Head and Neck Surgery, 2University of Michigan Department of Pathology

P181: INTRATHECAL CT CONTRAST CIISTERNOMAP IS INADEQUATE FOR DETECTION OF ANTERIOR SKULL BASE CSF FISTULAE – Jordan Fisher, PAC1, Edward J Hepworth, MD; Sinus Solutions

P182: 3D PRINTING AND INTRAOPERATIVE NEURO-NAVIGATION TAILORING FOR SKULL BASE RECONSTRUCTION AFTER EXTENDED ENDOonasal SURGERY – Walid I Essayed, MD1, Prashin Unadkat, MBBS1, Ahmed Hosny, MS2, Sarah Friskan, PhD3, Marco S Rassi, MD1, Srinivasan Mukanand Jr, MD, PhD3, James C Weaver, PhD4, Ossama Al-Mefty, MD1, Alexandra J Golby, MD1, Ian F Dunn, MD1; Department of Neurosurgery, Brigham and Women’s Hospital, Harvard Medical School, Department of Radiation Oncology, Dana-Farber Cancer Institute, Brigham and Women’s, Department of Radiology, Brigham and Women’s Hospital, Harvard Medical School, Wyss Institute for Biologically Inspired Engineering, Harvard University

P183: A MULTILAYERED TECHNIQUE FOR THE REPAIR OF A SUB OCCIPITAL RETROSIGMOID CRANIOTOMY – Amir H Goodarzi, MD1, Arjang Ahmadpour, MD2, Atrin Toussi, Kiarash Shahlaie, PhD, University of California Davis, University of Chicago

P184: TUNNELED TRANSFACIAL FREE TISSUE TRANSFER IN VENTRAL SKULL BASE RECONSTRUCTION – Ian Koszewski, MD1, Allison Keane1, Sanjeev Rangarajan, MD2, Hermes Garcia, MD1, Timothy Ortlip1, Mindy Rabinowitz, MD1, Gurston Nyquist, MD1, Ryan Heffelfinger, MD1, James Evans, MD1, Marc R Rosen, MD1; Thomas Jefferson University, University of Tennessee Health Science Center

P185: THE USE OF PREOPERATIVE 3D VOLUMETRIC ANALYSIS OF BUCCAL FAT PAD FLAP IN DETERMINING INTRAOPERATIVE FLAP REACH - A CADAVERIC STUDY – Somasundaram Subramaniam, MD1, Guillermo Maza, MD, Matias Gomez, Ricardo L Carrau, MD; The Ohio State University

P186: AN EXTENDED NASOSEPTAL FLAP FOR ANTERIOR SKULL BASE RECONSTRUCTION: CADAVER STUDY – Fatmahalzahra Banaz, MD1, Fahad Alkheryaf, MSc, MD2, Andre Lamothe, MD1, Charles Agbi, MD2, Mohammad Alkutbi, MD2, Shaun Kilty, MD1; Department of Otolaryngology-Head and Neck Surgery, University of Ottawa, Division of Neurosurgery, Department of Surgery, University of Ottawa

P187: HEMI-CRANIOTOMY IN A PATIENT WITH AUTOSOMAL DOMINANTOSTEOPETROSIS: A CASE REPORT – Aysha Alsahlawi1, Aishah Ekhzamy,2, Daniah Alshowair,3, Abdulrazag Ajlan3; King Fahad Medical City, King Khalid University Hospital, Saudi Arabia

P188: THE KURDISTAN SKULL-BASE NEUROSURGICAL EXPERIENCE: A DISCUSSION OF CHALLENGES IN PERFORMING COMPLEX SKULL-BASE NEUROSURGERY IN A RESOURCE-POOR REGION – Rimal Dossani, MD, Nimer Abushehab, MD, Jai Deep Thakur, MD, Rachael Wolfson, MD, Bharat Guthikonda, MD; LSUHSC-S

P189: PROTON BEAM RADIATION INDUCED SKULL BASE MALIGNANCY – Christopher A Schutt, MD1, Eric Sargent, MD1, Jeff Jacob, MD2; Department of Neurotology, Michigan Ear Institute, St. John Providence Hospital and Medical Centers, Department of Neurologic Surgery, St. John Providence Hospital and Medical Centers

P190: MALIGNANT JUGULOTYMPANIC PARAGANGLIOMA: REPORT OF TWO CASES – Carlos Chone, MD, DMSC, Elio Barbosa, MD; State University of Campinas

P191: PHOTOGRAMMETRIC CONSTRUCTION OF 3D MODELS OF SKULL BASE CADAVERIC DISSECTIONS- A NOVEL TOOL FOR ANATOMICAL EDUCATION AND SURGICAL PLANNING – Roberto Rodriguez Rubio, MD, Sheantel J Reihl, Olivia Kola, Ali Tayebi Meybodi, Ivan El-Sayed, MD, Adib A Abla, MD; University of California San Francisco
Poster Sessions

Poster Sessions

Posters will be displayed during all exhibit hall hours in the exhibit room.

P192: ANALYSIS OF PATIENT SAFETY AND OUTCOMES OF LIVE CASE DEMONSTRATIONS IN ENDOSCOPIC SKULL BASE SURGERY - Monika E Freiser, MD, MPH, John A Moore, BA, Paul A Gardner, MD, Carl H Snyderman, MD, MBA, Juan C Fernandez-Miranda, MD, Eric W Wang, MD, Yue-Fang Chang, PhD, Stella E Lee, MD; University of Pittsburgh Medical Center

P193: SURGICAL MOTION BASED AUTOMATIC OBJECTIVE SURGICAL COMPLETENESS ASSESSMENT IN ENDOSCOPIC SKULL BASE AND SINUS SURGERY - Yangming Li, Randall Bly, Mark Whipple, Ian Humphreys, Blake Hannaford, Kris Moe; University of Washington

P194: THE FLIPPED CLASSROOM IN NEUROLOGY RESIDENT EDUCATION: A PILOT STUDY - Michael Qtremba, MD, Lydia Shook, MD, Richard Peter Manes, MD, Elias Michaelides, MD; Yale University School of Medicine

P195: TRANSORBITAL NEUROENDOSCOPIC SURGERY (TONES) TRAJECTORY PLANNING - Maheer M Masood, BA, Zainab Farzal, MD, Parth V Shah, MD, Elizabeth D Stephenson, BA, Douglas R Farquhar, MD, Matthew Ewend, MD, Brian D Thorp, MD, Charles S Ebert, Jr, MD, MPH; Adam M Zanation, MD; Department of Otolaryngology/Head and Neck Surgery, University of North Carolina School of Medicine, Department of Neurosurgery, University of North Carolina School of Medicine

P197: TRANSORBITAL NEUROENDOSCOPIC SURGERY: OUR PRELIMINARY EXPERIENCE - Parth V Shah, MD, Maheer M Masood, BA, Gregory Capra, MD, Zainab Farzal, MD, Elizabeth D Stephenson, BA, Douglas R Farquhar, MD, Deanna Sasaki-Adams, Brian D Thorp, MD, Charles S Ebert, Jr, MD, MPH; Adam M Zanation, MD; University of North Carolina at Chapel Hill

P198: ORBITAL VARICES - Rebecca M Sieburth, MD, Steven A Newman, MD; University of Virginia

P199: Cavernous Sinus Hemangioma: Case Report and Review - Atrin Toussi, BS, Dylan A Noblett, BS, Mirna Lechpammer, MD, PhD, Jennifer Chang, MD, Kiarash Shahlaie, MD, PhD; Department of Neurosurgery, University of California, Davis, Department of Radiology, University of California, Davis, Department of Pathology, University of California, Davis

P200: A Transient, Postauricular Arteriovenous Fistula Masquerading as Acute Mastoiditis - Annie A K AHN, MD, Peter Kan, MD, MPH, Tara L Rosenberg, MD, Alex D Sweeney, MD; Baylor College of Medicine, Texas Children's Hospital

P201: Long Term Effects of Bevacizumab on Vestibular Schwannoma Volume in Neurofibromatosis Type 2 Patients: The UT Southwestern Experience - Daniel E Kilee, MD, Laura Klesse, MD, PhD, Anthony M Tolisano, MD, Jacob B Hunter, MD, Joe Walter Kutz, MD, FACS; Department of Otolaryngology - Head and Neck Surgery, University of Texas Southwestern Medical Center, Dallas, TX, U.S.A., Departments of Pediatrics and Neurosurgery, University of Texas Southwestern Medical Center, Dallas, TX, U.S.A

P202: Spontaneous Medial Migration of an Intracanicular Vestibular Schwannoma - Mostafa Fatehi Hassanabad, MD, MSc, Ryojo Akagami, MD, MSc; Vancouver General Hospital, Division of Neurosurgery

P203: Sudden Neurological Deterioration Due to Repeated Intratumoral Hemorrhage in a Patient with a Vestibular Schwannoma - Mostafa Fatehi Hassanabad, MD, MSc, Ryojo Akagami, MD, MSc; Vancouver General Hospital, Division of Neurosurgery

P204: Tumor Control of Vestibular Schwannomas After Gamma Knife Radiosurgery - Angad S Gogia, Douglas W Tucker, Daniel A Donoho, MD, Benjamin Yim, MD, Cheng Yu, PhD, Eric Chang, MD, Gabriel Zada, MD, MS; Steven Giannotta, MD; University of Southern California

P205: Improvement in Sudden Sensorineural Hearing Loss with Steroid Therapy Does Not Preclude the Need for MRI to Rule Out Vestibular Schwannoma - Cassandra Puccinelli, MD, Matthew L Carlson, MD; Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester, MN 55905 USA

P206: MRI of the Internal Auditory Canal: Is Gadolinium Necessary to Detect Intralabyrinthine Schwannomas? - John I Lane, MD, Matthew L Carlson, MD, Laurence J Eckel, MD, Carrie M Carr, MD, Johnathan C Valesano, MD, Yening Feng, MD, Research Trainee; Department of Radiology, Mayo Clinic, Rochester, MN, Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester, MN

P207: Microvascular Decompression for Treatment of Trigeminal Neuropathy in a Patient with a Facial Nerve Schwannoma - John P Marinelli, BS, Jamie J van Gompel, MD, Michael J Link, MD, Matthew L Carlson, MD, Mayo Clinic School of Medicine, Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester MN and Department of Neurologic Surgery, Mayo Clinic, Rochester MN

P208: Early Rupture of Distal AICA Pseudoaneurysm Post Translabyrinthine Approach for Vestibular Schwannoma - Aysha Alsahlawi, G Alsidieri, J Karamchandani, D Tampieri, D Sirhan; King Fahad Medical City, Saudi Arabia, Montreal neurological institute, Montreal, Canada
North American Skull Base Society

29th Annual Meeting

February 15-17, 2019, Hilton Orlando Bonnet Creek, Orlando Florida

Pre-Meeting Course: February 13-14, 2019

PRESIDENT: James Evans, MD

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- Head and Neck Tumors
- Imaging Techniques
- Innovative Technologies
- Meningiomas
- Orbital Tumors
- Pediatric Skull Base
- Pituitary Tumors
- Quality of Life
- Radiosurgery
- Reconstruction
- Surgical Techniques
- Temporal Bone/Acoustic Tumors
- Training and Education
- Trauma
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For general information regarding the meeting, please contact Paula Kupiec at paula@nasbs.org.