

# 2022 ADVANCE PROGRAM



North American Skull Base Society

# 31<sup>st</sup> Annual Meeting

*"Teams and Teamwork"*

**February 18-20, 2022**

Sheraton Grand at Wild Horse Pass, Phoenix, AZ

Pre-Meeting Dissection Course: **February 16-17, 2022**

PRESIDENT: John G. Golfinos, MD

PROGRAM CHAIRS: Daniel Prevedello, MD & C. Arturo Solares, MD

PRE-MEETING COURSE CHAIRS: Brian Thorp, MD and Gustavo Pradilla, MD

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Dear colleagues,

It is my great pleasure and enormous privilege to welcome you all warmly to the 31st Annual Meeting of the North American Skull Base Society (NASBS) in beautiful Phoenix, Arizona. The American Southwest is a place of rugged history and breath-taking landscapes and a place dear to my heart from the years I spent there in my training. It is the perfect place for all of us to gather once again and see each other in three glorious dimensions after the COVID-19 pandemic caused us to retreat on-line for last year's symposium. This year, as the pandemic continues its lingering intrusion into our lives, we will take every precaution to ensure a safe and healthy meeting for all attendees. We will also, of course, have some sessions of the meeting available on-line. Arizona in February is a place of warm days, cool nights, breath-taking sunsets, and gorgeous, star-filled night skies that must be seen to be believed. Our conference hotel, the Sheraton Grand at Wild Horse Pass, is Arizona's premier Native American-owned luxury Phoenix resort, designed to be an authentic representation of the Gila River Indian Community's heritage and culture.



John G. Golfinos, MD

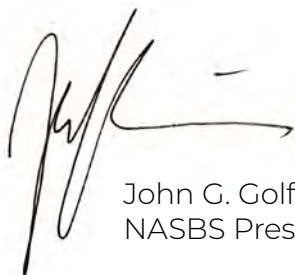
The theme of this year's meeting is "Teams and Teamwork." The unique, and to me the most endearing, feature of our Society is the fact that we are a multi-specialty group welcoming otolaryngologists, neurosurgeons, plastic surgeons, radiation oncologists, and other specialists in equal measure. We are all part of the skull base team; and while we may once have approached the base of the skull from our own chosen directions, we are now all team members that combine our talents to benefit our patients from every direction. This year's Honored Guest Speakers have all created special teams in skull base and elsewhere that have allowed them to achieve great accomplishments. Michel Kalamarides, Professor of Neurosurgery at Hôpital Pitié-Salpêtrière in Paris, is not only famously accomplished in taming skull base tumors, but he also leads a premier lab studying the molecular biology of meningiomas. I will also sit down with my colleague, Chandranath Sen, who leads the Chordoma Center of Excellence at NYU Langone. Dr. Sen was present as first a fellow and then a junior faculty member at the very dawn of the advanced skull base surgery we practice today. I will enjoy asking him some thought-provoking questions on how we all got here, how they formed the team at the University of Pittsburgh in those days, and how they got everyone to play together on that team. On Saturday, we will hear from Douglas Kondziolka, who was critical in creating the Gamma Knife team at the University of Pittsburgh during that same time and who now leads the radiosurgery team at NYU. My mentor and former President of the NASBS, Robert F. Spetzler, will share his experience in creating a skull base team and in creating one of the great neurosurgical programs in the United States. Finally, it will be my great privilege to introduce my teammate of the last 25 years, J. Thomas Roland, Jr., the Chairman of Otolaryngology at NYULMC. Dr. Roland will discuss the teams we have built together and then will share the podium with James Crowley, a team builder in the United States Military. There is a reason that teams are the heart of this meeting: teams are at the very heart of skull base surgery and subsequently at the heart of the North American Skull Base Society. The defining feature of our Society is individuals with varied talents, combining and sharing their abilities and unique points-of-view to solve the puzzles of skull base diseases, far better than any of us could trying to work solo. To that end, I am proud to see how much our list of NASBS Multidisciplinary Teams of Distinction has grown over the past two years – with over 30 teams now listed!w

As always, this year's meeting will showcase a faculty of the leading lights of skull base surgery from around the globe. As our membership has grown past 1,000 members, a pandemic notwithstanding, our meeting has similarly grown to cover all the latest aspects of skull base surgery. I owe an enormous debt of gratitude to our Scientific Program Committee under the leadership of the inimitable Daniel Prevedello and C. Arturo Solares. All of them have done an incredible job for not one but two straight years, creating an incredible Virtual Symposium last year, and then doing it all over again at the same stratospheric level for this year's Annual Meeting. In particular, Professors

Prevedello and Solares have set the new standard for the leaders of the Scientific Program Committee. Our Pre-Meeting Dissection Course is back in full this year and will again represent an opportunity beyond belief to learn skull base techniques from the leading practitioners in the field.

I hope that you can hear the excitement in my voice and will understand that there is so much more I could talk about for this year's Annual Meeting if the space allowed. Within the constraints of the virus, we will finally be able to come together in-person and share the collegiality and exchange of ideas that we have all so sorely missed. There is really only one way to look at – come and be part of the team - [come to the Annual Meeting of the North American Skull Base Society in Phoenix, AZ on February 18-20, 2022](#). Otologist, rhinologist, laryngologist, ophthalmologist, radiation oncologist, plastic surgeon or neurosurgeon – all are welcome as important teammates in the North American Skull Base Society. Join the team! Enjoy learning about the latest developments in skull base surgery and enjoy learning about forming your own team of distinction.

It has been the greatest privilege of my career to lead this Society. I have worked with the best team that a President could ask for. I am grateful to the members of the North American Skull Base Society for granting me this enormous privilege and I hope to see you all in Phoenix!

A handwritten signature in black ink, appearing to read 'J. Golfinos', with a stylized horizontal line extending to the right.

John G. Golfinos, MD  
NASBS President 2020-2022



# Keynote and Honored Guest Speakers

## Keynote Speakers

### James Crowley

James is an accomplished business leader and US Army Special Operations veteran with a passion for building teams and driving them toward successful outcomes. As a member of the elite Special Operations Command (SOCOM), James served eight combat deployments with distinction across Iraq, Afghanistan and Africa. He has led multi-national teams in high-stakes initiatives, earning such notable awards as the Defense Meritorious Service Medal, two Bronze Stars, the Army Commendation Medal with "V" Device, the Military Free Fall Badge with combat star, and the Presidential Unit Citation (permanent award). More recently, James has held the positions of COO and CEO of a global risk management consulting firm, where he helped the business gain market share and expand its footprint. He is currently a Managing Director at a financial services firm in New York, which is a premier provider of institutional trading, investment banking, research and prime and fund services worldwide. His core expertise is in organizational change management and operational process improvement. James holds an MBA from Columbia University, and an MPS from Georgetown University.



### J. Thomas Roland, Jr., MD

From the first day I stepped into NYU Langone as a fourth-year medical student and felt the energy, I knew this was where I wanted to train. That was in 1982, and I've been here ever since.

I was drawn to surgery early in my career. I eventually decided on otolaryngology because I've always had the patience for the technical detail. I enjoy quickly identifying a problem and carrying out a plan to fix it. My particular special interest is in skull base surgery and hearing restoration,

which is now done through small keyhole openings to remove benign and cancerous tumors with minimally invasive techniques. Enabling a person to hear through the use of cochlear and auditory brainstem implants is a uniquely special experience.

I value the contributions of everyone who cares for a patient, from his or her family to the surgeons, therapists, and audiologists. A child with hearing loss, for example, needs all of us to work together to achieve the best possible outcome.

I am most proud of our collaborative approach at the NYU Langone Cochlear Implant Center and Skull Base Surgery Center, one of the largest and most productive of its kind in the world.

## Honored Guest Speakers



### Michel Kalamarides, MD

Michel Kalamarides is a Professor of Neurosurgery at Pitié-Salpêtrière Hôpital (Faculté de Médecine, Sorbonne- Université), Paris France.

He is specialized in vestibular schwannoma and meningioma surgery. He has performed more than 1500 CPA tumors surgery with neuro-otology team previously led by Olivier Sterkers. Within a large INSERM unit- U 1127 at Brain and Spine Institute (Pitié-Salpêtrière), he is leading a research group on meningioma, particularly using mouse models to dissect the mechanisms of

meningioma initiation and progression. He is leading the French NF2 reference clinical center and the French NF2 network.

# Keynote and Honored Guest Speakers



## **Douglas Kondziolka, MD**

Dr. Douglas Kondziolka received his medical degree from the University of Toronto and graduated from the Toronto neurosurgery residency program in 1991. From 1989 to 1991 at the University of Pittsburgh, he completed a master of science program in the Department of Behavioral Neuroscience and a fellowship in stereotactic surgery and radiosurgery. His thesis focused on brain radiobiology.

He joined the faculty of the Department of Neurological Surgery at the University of Pittsburgh in January 1992 and later was named Chief of Stereotactic and Functional Neurosurgery. He served as the Vice-Chair for Education. He was the neuroscience task force leader for the McGowan Institute for Regenerative Medicine. Dr. Kondziolka served as principal investigator of the first two clinical neurotransplantation trials for the care of patients with stroke and completed a third as co-principal investigator on a study to evaluate bone marrow derived neuroprogenitor cell implantation for stroke. A fourth trial was completed in 2018. He has completed two clinical trials in neurostimulation research for major depression with the Department of Psychiatry and directed the UPMC Center for Brain Function and Behavior. His laboratory and clinical research in stereotactic radiosurgery spans the breadth of indications including benign and malignant tumors, vascular malformations and functional disorders.

In November 2012, Dr. Kondziolka joined the neurosurgery faculty at New York University as Professor and Vice-Chair for Clinical Research. He launched the first global registry platform for neurosurgery that focused initially on the broad array of radiosurgical indications. Current research is on metabolic and vascular effects of brain tumor radiosurgery using novel neuroimaging techniques, brain tumor natural history studies, and clinical registry analytics.

Dr. Kondziolka has published 601 articles in refereed journals, 273 book chapters and/or invited publications, and has edited 8 books. He has completed four randomized controlled trials. He is a two-time recipient of the Stephen Mahaley Award for brain tumor clinical research from the Joint Section on Tumors of the AANS/CNS. He received the Lars Leksell Award from the World Federation of Neurosurgical Societies. In 2004, he was honored as the Penfield Lecturer of the Canadian Neurosurgical Society. In 2006 he received the Robert Florin Award of the American Association of Neurological Surgeons for socio-economic research, and in 2007, the AANS Integra Foundation Award. In 2007 he received the Jacob Fabrikant Award from the International Stereotactic Radiosurgery Society. In 2014 he received the Bernard Sanberg Award for significant research contributions from the American Society for Neural Therapy and Repair. He is a Past-President of the American Society for Stereotactic and Functional Neurosurgery, and Past-President of the International Stereotactic Radiosurgery Society. In 2006-2007, he served as President of the Congress of Neurological Surgeons. He served as neurosurgeon for the Pittsburgh Penguins of the National Hockey League from 2002-2012. He served as co-chair of the editorial board of the Journal of Neurosurgery (2008-2013) and is now Associate Editor. In 2014 he became a Director of the American Board of Neurological Surgery (2014-2020). He was appointed to the Residency Review Committee of the ACGME in neurosurgery (2020). He is Past-President of the American Academy of Neurological Surgery. He has been a visiting professor at the top institutions in the United States and Canada, and has lectured extensively across the world. His h-index is 104.

# Keynote and Honored Guest Speakers



## **Chandranath Sen**

I completed neurosurgery residency at the University of Wisconsin, Madison in 1985, Fellowship in Microneurosurgery at the University of Pittsburgh in December 1986. I was on the University of Pittsburgh, Department of Neurosurgery faculty until 1991. I then joined the Department of Neurosurgery at the Mount Sinai Medical Center in New York. I left there to be the Chairman of Neurosurgery at the Continuum Health Partners in New York in 2000. In January 2011 I joined the Department of Neurosurgery at the New York University Langone Medical Center as Professor, Director of Skull base surgery

and Cranial Nerve disorders.



## **Robert Spetzler**

ROBERT F. SPETZLER, M.D., was born in Stierhoefstetten, Germany in 1944. In 1953, his family moved to the United States and on July 16, 1965, he was naturalized. He attended Knox College in Galesburg, Illinois, and graduated cum laude with Bachelors of Science degree in Biology and Chemistry in 1967. In 1967, he entered medical school at Northwestern University, where he obtained his M.D. in 1971 and completed his internship in 1972.

In 1972, Dr. Spetzler moved to the University of California at San Francisco where he trained as a resident under Charles B. Wilson, M.D., Professor and Chairman, Department of Neurosurgery. It was there, under the expert tutelage of Dr. Wilson, that his interest in neurovascular surgery developed and his commitment to academic neurosurgery was established. Before finishing his residency, he had already published 15 articles in refereed journals, on eight of which he was first author; had helped edit two books; and had made almost 20 presentations at national and international meetings. During the last year of his residency, he was awarded a Trauma Fellowship from the National Institutes of Health (NIH). He also received the Annual Resident Award at the 27th Annual Meeting of the Congress of Neurological Surgeons.

After his residency, Dr. Spetzler joined the Department of Neurosurgery at Case Western Reserve in Cleveland, Ohio as an Assistant Professor. In 1980, he received his first major grant from NIH, developing a baboon model of stroke that has been particularly generative for testing new therapeutic treatments for stroke and cerebral ischemia. In 1981, he was promoted to Associate Professor, holding that appointment until 1983.

In 1983, Dr. Spetzler was recruited by Dr. John R. Green to assume the J. N. Harber Chair of Neurological Surgery at the Barrow Neurological Institute (BNI) in Phoenix, Arizona. Under Dr. Spetzler's leadership, the BNI has grown from primarily a regional center to an internationally recognized center of excellence that attracts both visiting health care professionals and patient referrals from around the world. The residency program has become the largest and one of the most highly sought programs because of the diversity of clinical experience and the emphasis on developing independent research projects.

Among just a few of Dr. Spetzler's contributions, have been the development of the NPPBT and a grading system for cranial and spinal AVMs; cardiac arrest for giant infratentorial aneurysms, and the development of innovative approaches for CM's in the brainstem and thalamus. Overall, he has published 856 articles in refereed journals and authored 29 books. He has presented virtually every named lectureship nationally and internationally.

Among countless honors, Dr. Spetzler was awarded an honorary doctoral degree from his undergraduate alma mater, Knox College, and was chosen as the Honored Guest of the Congress of Neurological Surgeons 1994-the youngest member ever to receive this award. In 2017 he received the AANS highest honor, the Cushing Medal. He is happily married to Nancy, his inspiration and the mother of their two precious children.

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Los Angeles, California 90064  
Phone: 310-424-3326  
FAX: 310-437-0585  
[www.nasbs.org](http://www.nasbs.org)

## Hotel Contact

**Sheraton Grand at Wild Horse Pass**  
5594 W Wild Horse Pass Blvd,  
Phoenix, AZ 85226  
PHONE: 1-844-209-0063

## NASBS is managed by BSC Management, Inc.

11300 West Olympic Blvd., Suite 600  
Los Angeles, CA 90064  
Phone: 310-437-0555, Ext. 101  
FAX: 310-437-0585  
E-Mail: [info@bscmanage.com](mailto:info@bscmanage.com)  
[www.bscmanage.com](http://www.bscmanage.com)

# General/CME Information

## CME ACCREDITATION:

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education through the joint providership of American College of Surgeons (ACS) and North American Skull Base Society. ASC is accredited by the ACCME to provide continuing medical education for physicians.

## CONTINUING MEDICAL EDUCATION CREDIT INFORMATION

### Accreditation

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

### AMA PRA Category 1 Credits™

The American College of Surgeons designates this live activity for a maximum of 21.5 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



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DIVISION OF EDUCATION

# General 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.
- To 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

**Ineligible Company:** The ACCME defines an “ineligible company” as any entity producing, marketing, re-selling, or distributing health care goods or services used on or consumed by patients. Providers of clinical services directly to patients are NOT included in this definition.

**Financial Relationships:** Relationships in which the individual benefits by receiving a salary, royalty, intellectual property rights, consulting fee, honoraria, ownership interest (e.g., stocks, stock options or other ownership interest, excluding diversified mutual funds),

# Meeting Leadership

## NASBS Scientific Program Committee

John G. Golfinos, MD, *President*  
Daniel Prevedello, MD, *Program Co-Chair*  
C. Arturo Solares, MD, *Program Co-Chair*  
Brian Thorp, MD, *Pre-Course Co-Chair*  
Gustavo Pradilla, MD, FACS *Pre-Course Co-Chair*  
Lee A. Zimmer, *President-Elect*  
Cristine Klatt-Cromwell, MD, *Poster Co-Chair*  
Camilo Reyes, MD, *Poster Co-Chair*  
David Friedmann, MD, *Rhoton Room Co-Chair*  
Juan C. Fernandez-Miranda, MD, *Rhoton Room Co-Chair*  
Matthew Owen Old, MD, *Reconstruction Day Co-Chair*  
Carolina Benjamin, MD, *Women in Skull Base Chair*  
Bharat Guthikonda, MD, *Primer Course Chair*  
Gelareh Zadeh, MD, *Early Career Skull Base Surgeons Co-Chair*  
Jeffrey Steinberg, MD, *Early Career Skull Base Surgeons Co-Chair*  
Christopher Rassekh, MD, *Surgical Education Committee Liaison*  
Pablo Recinos, MD, *Special Sessions Chair*  
Oswaldo Henriquez, MD, *Global Education Day Co-Chair*  
Diego Mendez-Rosito, MD, *Global Education Day Co-Chair*  
Jamie Van Gompel, MD, *Main Topic Chair*  
Donato Pacione, MD, *Hot Topic Chair*  
David Jang, MD, *Expert Debate Chair*  
Carlos Pinheiro-Neto, MD, PhD, *Reconstruction Day Co-Chair*  
Jose Gurrola, MD, *Video Session Chair*

## NASBS Board of Directors Officers

PRESIDENT: John G. Golfinos, MD  
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# General Information

or other financial benefit. Financial benefits are usually associated with roles such as employment, management position, independent contractor (including contracted research), consulting, speaking and teaching, membership on advisory committees or review panels, board membership, and other activities from which remuneration is received, or expected. ACCME considers relationships of the person involved in the CME activity to include financial relationships of a spouse or partner.

**Conflict of Interest:** Circumstances create a conflict of interest when an individual has an opportunity to affect CME content about products or services of a ineligible company with which he/she has a financial relationship.

The ACCME also requires that ACS manage any reported conflict and eliminate the potential for bias during the educational activity. Any conflicts noted below have been managed to our satisfaction. The disclosure information is intended to identify any commercial relationships and allow learners to form their own judgments. However, if you perceive a bias during the educational activity, please report it on the evaluation.

In accordance with the ACCME Accreditation Criteria, the American College of Surgeons must ensure that anyone in a position to control the content of the educational activity (planners and speakers/authors/discussants/moderators) has disclosed all financial relationships with any commercial interest (termed by the ACCME as “ineligible companies”, defined on the previous page) held in the last 24 months. Please note that first authors were required to collect and submit disclosure information on behalf all other authors/contributors, if applicable. Full listing found on [page 90](#).

## MEMBERSHIP BENEFITS

- Active members will receive the official journal of the society, The Journal of Neurological Surgery Part B, a 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. Affiliate, International and Candidate members may subscribe to the journal for \$100 annually.
- Discounted rates to attend the Annual Meeting
- Opportunities to network with colleagues and experts from across North America and globally
- Committees which provide opportunities for camaraderie, involvement and leadership development
- Online access to all members contact information.

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

For information on membership, visit the Membership table near Registration at the NASBS 2022 Annual Meeting.

## 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.

# CLEAR Health Pass

As part of our commitment to the safety at the NASBS 2022 Annual Meeting, all attendees must upload their COVID-19 vaccination record in advance to arrival. In addition, attendees are required to submit a completed health survey prior to entering the conference space each day of the annual meeting.

- NASBS 2022 Annual Meeting be using **Health Pass by CLEAR**, which provides a secure, digital proof of COVID-related information via the free CLEAR mobile app. We recommend you complete your enrollment and health screening with **Health Pass by CLEAR** ahead of time for expedited check-in and entry!
  - Clear Health Pass can only be accessed on a mobile device or tablet. Download the app or use one of the following links to find the CLEAR App:
    - iOS app: <https://apps.apple.com/us/app/clear-fast-touchless-access/id1436333504>
    - Android app: <https://play.google.com/store/apps/details?id=com.clearme.clearapp>
- For the most efficient entry possible, every attendee should enroll with CLEAR before the event to complete their COVID-19 pre-screening. Once your vaccination record has been uploaded to the platform, it can typically take up to 30 minutes for your status to be verified. We encourage all attendees to complete this process at least 24 hours before the meeting.

## HEALTH PASS BY CLEAR

Get ready for the meeting by downloading CLEAR for free and completing the one-time enrollment process to verify your entry requirements. You'll be able to use Health Pass to confirm entry requirements before entering the NASBS 2022 Annual Meeting.

The NASBS office will shortly email all registered in-person attendees with the required event code to complete your verification for the NASBS 2022 Annual Meeting CLEAR Health Pass. If there are any question, please contact [miranda@nasbs.org](mailto:miranda@nasbs.org).

For additional information, please review the CLEAR Health Pass FAQ here:  
[https://www.nasbs.org/wp-content/uploads/2022/01/Health\\_Pass\\_User\\_FAQs\\_-2.pdf](https://www.nasbs.org/wp-content/uploads/2022/01/Health_Pass_User_FAQs_-2.pdf)

Need help? Call 855-CLEAR-ME or tap "Get in Touch" in the app for assistance

*Disclaimer: CLEAR will not share your specific data about your vaccination or health survey results with the NASBS.*

# Meeting Hours

## REGISTRATION HOURS

Thursday, February 17, 2022	12:30 pm – 7:00 pm
Friday, February 18, 2022	6:00 am – 6:30 pm
Saturday, February 19, 2022	6:30 am – 6:00 pm
Sunday, February 20, 2022	7:00 am – 12:00 pm

## EXHIBIT HALL/POSTER HOURS

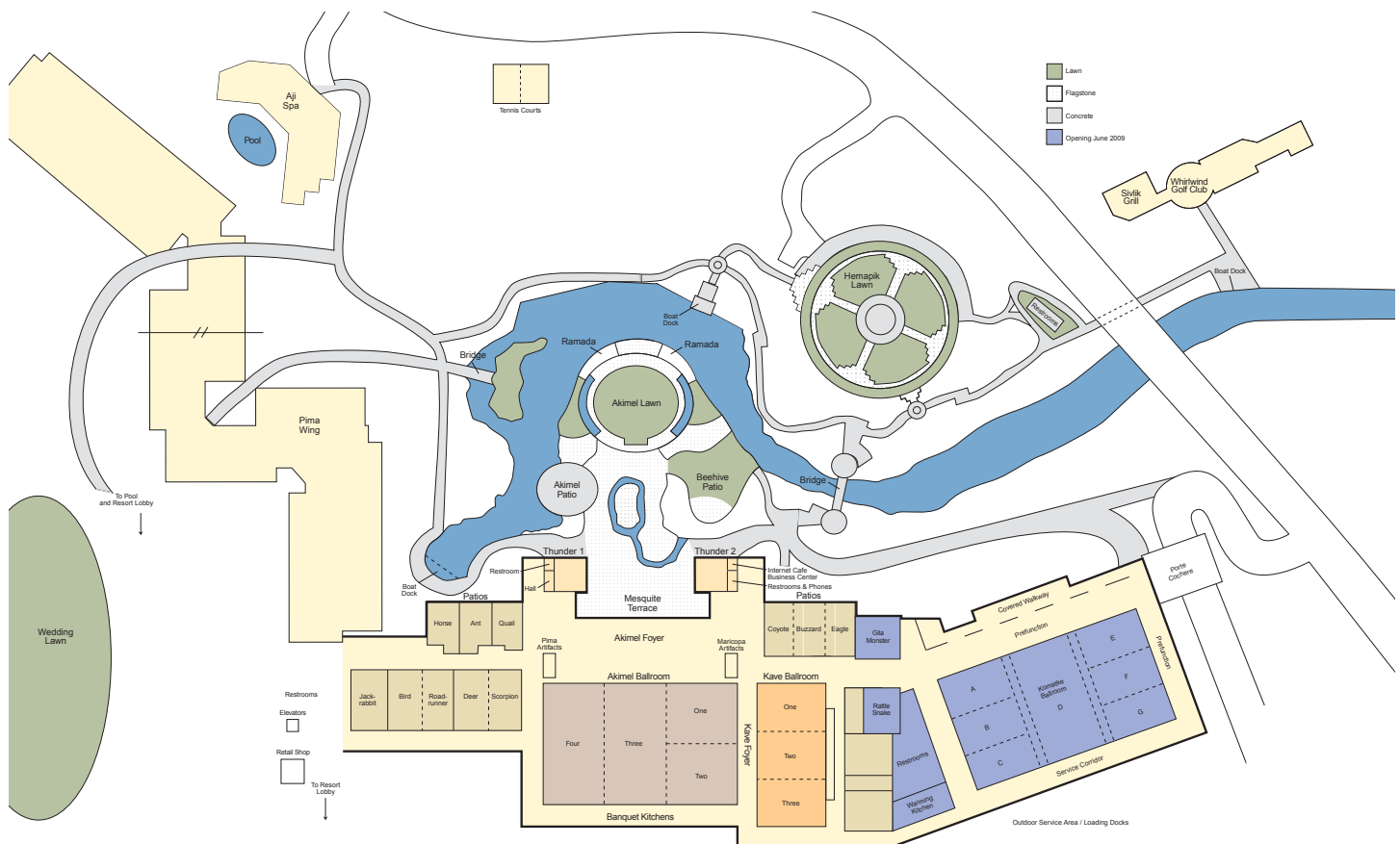
Thursday, February 17, 2022	12:00 pm to 6:00 pm	Exhibit Hall Set Up
Friday, February 18, 2022	9:00 am to 4:00 pm	Exhibit Hall Open
	9:35 am to 10:05 am	Refreshment Break
	12:20 pm to 1:20 pm	Lunch for Non-Members
	3:30 pm to 4:00 pm	Refreshment Break
	4:00 pm to 6:05 pm	Exhibit Hall Closed
	6:05 pm to 7:35 pm	Welcome Reception
Saturday, February 19, 2022	9:00 am to 4:00 pm	Exhibit Hall Open
	9:35 am to 10:05 am	Refreshment Break
	12:20 pm to 1:20 pm	Lunch/Poster Viewing
	3:30 pm to 4:00 pm	Refreshment Break
	4:00 pm to 9:30 pm	Dismantle & Removal of Exhibits

*\*Dismantle & Removal Hours are subject to change*

## Past Presidents

<b>1990</b>	Paul J. Donald, MD	<b>2005</b>	Patrick J. Gullane, MD
<b>1991</b>	Laligam N. Sekhar, MD	<b>2006</b>	Anil Nanda, MD
<b>1992</b>	Ivo P. Janecka, MD	<b>2007</b>	Guy J. Petrozzelli, MD
<b>1993</b>	Peter G. Smith, MD, PhD	<b>2008</b>	Franco DeMonte, MD
<b>1994</b>	Albert L. Rhoton, Jr., MD	<b>2009</b>	Daniel Nuss, MD
<b>1995</b>	Hugh Curtin, MD	<b>2011</b>	Peter Neligan, MD
<b>1996</b>	Derald E. Brackmann, MD	<b>2012</b>	Dennis Kraus, MD
<b>1997</b>	Ossam Al Mefty, MD	<b>2013</b>	Carl Heilman, MD
<b>1998</b>	Steven A. Newman, MD	<b>2014</b>	Ehab Hanna, MD, FACS
<b>1999</b>	John P. Leonetti, MD	<b>2015</b>	Michael Link, MD
<b>2000</b>	Robert F. Spetzler, MD	<b>2016</b>	Carl Snyderman, MD, MBA
<b>2001</b>	Ian T. Jackson, MD	<b>2017</b>	Jacques Morcos, MD, FRCS, FAANS
<b>2002</b>	Vinod K. Anand, MD	<b>2018</b>	Ian Witterick, MD
<b>2003</b>	Jon H. Robertson, MD	<b>2019</b>	James Evans, MD, FACS, FAANS
<b>2004</b>	Jatin Shah, MD	<b>2020</b>	Ricardo Carrau, MD, MBA

# Hotel Floor Plan





Friday, February 18, 2022

Time (Mountain Time Zone)	Session	Location
7:30am-9:35am	<p><b><u>Skull Base Reconstruction Day</u></b></p> <p>The Reconstruction Educational Day is designed to be an exciting journey in such important chapter of skull base surgery. It starts with the anatomical basis of the main flaps and the harvesting techniques. Then each specific anatomical area is covered including anterior and lateral skull base. The idea is to follow a ladder approach from minimum to maximum to facilitate the selection of the best reconstructive option. To conclude the day, a special session highlighting complex cases and complications.</p> <p>The Reconstruction Educational Day should be attended by residents, fellows and experienced surgeons with interest in cranial base reconstruction. Surgeons of different specialties and subspecialties (Rhinology, Neurotology, Head and Neck Surgery, Oculoplastic Surgery, Plastic Surgery and Neurosurgery) will benefit from this Educational Day.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Understand the anatomy and vascularization of flaps commonly used in skull base reconstruction.</li> <li>» Differentiate size of defects, low-flow and high-flow intraoperative CSF leak and their impact on the reconstructive technique.</li> <li>» Use effectively a ladder of reconstruction from minimum (grafts) to maximum (free flaps) and identify the impact of comorbidities on this ladder.</li> <li>» Recognize reconstructive nuances of lateral approaches: endoscopic transcanal, transmastoid and middle fossa.</li> <li>» Formulate an effective plan for the cranial base reconstruction and be prepared for other options in case of unpredicted change.</li> </ul>	Komatke Ballroom
7:30am-8:30am	<p><b><u>Main Topic 1: Clival and Parasellar Pathology</u></b></p> <p>Session concentrates on the nuances of the clivus and its most common pathology: chordoma. At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Be able to recognize the diverse pathology of the clivus.</li> <li>» Understand that the pathology of the clivus may depend on imaging.</li> <li>» Gain appreciation for upcoming molecular impact in diagnosis and treatment of clival pathologies.</li> </ul>	Buzzard/Coyote/Eagle

**7:30am-8:30am**     **Main Topic 2: Sinonasal Malignancies with Skull Base Involvement**     *Jackrabbit*

This session concentrates on Sinonasal malignancies such as squamous cell carcinoma, neuroendocrine tumors, and melanoma with skull base involvement. At the conclusion of this session, attendees will be able to:

- » Understand Imaging Modalities useful in prognostication and surgical planning for Sinonasal malignancies.
- » Understand the impact of quality of life with treatment of sinonasal malignancies.
- » Gain appreciation for cutting edge knowledge relative to sinonasal malignancies.

**7:30am-8:30am**     **Main Topic 3: Integrating Research into a Busy Clinical Practice**     *Pipai Kave I*

The session is designed to place a spotlight on the effective researchers in our NASBS cohort, as well as motivate us all to get more involved in funded research. At the conclusion of this session, attendees will be able to:

- » Gain an appreciation for research beyond case series performed relative to skull base in our membership.
- » Gain a basic understanding of lab mechanics and establishment.
- » Motivate NASBS membership to work toward more basic research in Skull base relevant basic and translational science.

**7:30am-8:30am**     **Main Topic 4: Perineural Spread in Head and Neck Malignancies**     *Deer/Scorpion*

Peri-neural Spread in head and neck malignancies represents a challenging clinical and surgical problem, here from experts regarding the nuances of the impact in treatment of peri-neural spread.

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

- » Describe peri-neural spread and its impact on treatment.
- » Gain understanding for imaging that may help in identifying peri-neural spread in head and neck malignancies.
- » Understand treatment options available in cases of peri-neural spread in head and neck malignancies.

**7:30am-8:30am**     **Main Topic 5: Complications in Skull Base Surgery**     *Bird/Roadrunner*

This session concentrates avoidance and management of skull base complications.

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

- » Understand how preoperative study/planning may help in avoiding complications.
- » Gain tips and tricks to avoid unintentional nerve injury during surgery.
- » Gain appreciation for management of complications.

8:35am-9:35am	<b><u>Expert Debate 1: Running Multiple Rooms – Legal and Ethical Implications</u></b> <p>This expert debate session will focus on concurrent and overlapping skull base surgeries in the operating room setting. Legal and ethical implications for running multiple rooms will be discussed.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Identify legal implications of running multiple rooms.</li> <li>» Identify ethical implications of running multiple rooms.</li> <li>» Develop a strategy for running multiple rooms that optimizes patient care.</li> </ul>	Buzzard/Coyote/ Eagle
8:35am-9:35am	<b><u>Expert Debate 2: Management of Small Acoustic Neuromas – Observe, Radiate or Operate</u></b> <p>This expert debate session will feature case discussions of patients with small acoustic neuromas. Controversies surrounding management options—observation, radiation, surgery—will be highlighted.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Identify treatment modalities for small acoustic neuromas.</li> <li>» Discuss benefits and pitfalls of each treatment modality.</li> <li>» Formulate a treatment algorithm that can be applied in a clinical setting.</li> </ul>	Jackrabbit
8:35am-9:35am	<b><u>Expert Debate 3: Sinonasal Small Round Blue Cell Tumors – Surgery vs. CRT</u></b> <p>This expert debate session will feature case presentations of patients with sinonasal small round blue cell tumors. Management strategies will be discussed, with an emphasis on the controversies surrounding surgical versus nonsurgical therapy.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Develop a differential diagnosis for patients with small round blue cell tumors.</li> <li>» Identify treatment options for patients with small round blue cell tumors.</li> <li>» Formulate a treatment algorithm that can be applied in a clinical setting.</li> </ul>	

<b>8:35am-9:35am</b>	<b><u>Expert Debate 4: Surgery vs Radiation Therapy in Perineural Invasion (Zone 2)</u></b> <p>This expert debate session will feature case presentations of skull base malignancies with perineural invasion involving Zone 2, particularly the cavernous sinus. Management strategies will be discussed, with an emphasis on the controversies surrounding surgery versus radiation.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Describe clinical presentation of patients with malignant tumors with perineural invasion into Zone 2.</li> <li>» Identify treatment options for these patients.</li> <li>» Discuss the risks and benefits of surgery versus radiation.</li> </ul>	<i>Deer/Scorpion</i>
<b>8:35am-9:35am</b>	<b><u>Expert Debate 5: Recurrent Nasopharyngeal Carcinoma: Surgery vs Re-irradiation</u></b> <p>This expert debate session will feature case presentations of recurrent nasopharyngeal carcinoma. Management strategies will be discussed, with an emphasis on the controversies surrounding salvage surgery versus re-irradiation.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Identify treatment options for patients with recurrent nasopharyngeal carcinoma.</li> <li>» Discuss the pros and cons of salvage surgery vs re-irradiation.</li> <li>» Develop a framework for assisting patients to make an informed treatment decision.</li> </ul>	<i>Bird/Roadrunner</i>
<b>9:35am-10:05am</b>	<b><i>Break</i></b>	<i>Akimel Ballroom</i>
<b>10:05am-12:20pm</b>	<b><u>General Session</u></b> <p>Presidential Welcome &amp; Daily Announcements</p> <p>Journal Presentation</p> <p>Research Committee Presentation &amp; Research Grant Award Presentation</p> <p>Presidential Address – <i>Teams and Teamwork</i></p> <p>Membership Committee Presentation</p> <p>Value Based Health Care Committee Presentation</p> <p>Honored Guest Speaker Presentations</p>	<i>Komatke Ballroom</i>
<b>12:20pm-1:20pm</b>	<b><i>Lunch in Exhibit Hall</i></b>	<i>Akimel Ballroom</i>
<b>12:30pm-1:00pm</b>	<b><u>Business Meeting (NASBS Members Only)</u></b>	<i>Komatke Ballroom</i>



**1:20pm-3:25pm**

## **Skull Base Reconstruction Day**

*Komatke Ballroom*

The Reconstruction Educational Day is designed to be an exciting journey in such important chapter of skull base surgery. It starts with the anatomical basis of the main flaps and the harvesting techniques. Then each specific anatomical area is covered including anterior and lateral skull base. The idea is to follow a ladder approach from minimum to maximum to facilitate the selection of the best reconstructive option. To conclude the day, a special session highlighting complex cases and complications.

The Reconstruction Educational Day should be attended by residents, fellows and experienced surgeons with interest in cranial base reconstruction. Surgeons of different specialties and subspecialties (Rhinology, Neurotology, Head and Neck Surgery, Oculoplastic Surgery, Plastic Surgery and Neurosurgery) will benefit from this Educational Day.

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

- » Understand the anatomy and vascularization of flaps commonly used in skull base reconstruction.
- » Differentiate size of defects, low-flow and high-flow intraoperative CSF leak and their impact on the reconstructive technique.
- » Use effectively a ladder of reconstruction from minimum (grafts) to maximum (free flaps) and identify the impact of comorbidities on this ladder.
- » Recognize reconstructive nuances of lateral approaches: endoscopic transcanal, transmastoid and middle fossa.
- » Formulate an effective plan for the cranial base reconstruction and be prepared for other options in case of unpredicted change.

**1:20pm-3:25pm**

## **Primer Course**

*Jackrabbit*

This year's Primer Course will be a comprehensive overview of open and endoscopic skull base surgery and will emphasize the multidisciplinary, collaborative nature of these cases and of the NASBS in general. This session will be organized in a way that the management of skull base pathology will be described in concert with the complications that the treatments may cause. We hope that all participants will learn what to do, what not to do, and how to address post-treatment complications. We invite all skull base trainees, newly practicing skull base surgeons, and anyone interesting in developing a team-oriented skull base program to attend this session.

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

- » Choose when to operate and when not to operate on skull base lesions.
- » Organize a team-based thoughtful approach to treating skull base pathology.
- » Recognize and manage common complications associated with skull base surgery.

1:20pm-2:20pm	<p><b><u>Hot Topic 1: Hearing Preservation in Vestibular Schwannomas</u></b></p> <p>Review the ability to preserve hearing with surgical or radiosurgery treatment of vestibular schwannomas. In addition, we will review hearing augmentation options to assist in hearing preservation. This session should be attended by neurosurgeons, otologists and radiation oncologists.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Compare hearing outcomes for surgery and radiosurgery in the treatment of vestibular schwannomas.</li> <li>» Evaluate the most appropriate treatment option given the characteristics of the vestibular schwannoma.</li> <li>» Integrate hearing augmentation devices into treatment algorithms for hearing preservation.</li> </ul>	Buzzard/Coyote/ Eagle
1:20pm-2:20pm	<p><b><u>Hot Topic 2: Preserving Function in Adamantinomatous Craniopharyngioma</u></b></p> <p>Review the treatment options for craniopharyngioma which may be utilized to preserve endocrine and neurologic function. This session should be attended by neurosurgeons, ophthalmologists, radiation oncologists, and endocrinologists.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Evaluate which surgical approach results in the highest rate of preservation of function.</li> <li>» Compare the functional preservation associated with radiation versus surgical resection of craniopharyngioma.</li> <li>» Predict functional outcome associated with the treatment of craniopharyngioma.</li> </ul>	Pipai Kave I
1:20pm-2:20pm	<p><b><u>Hot Topic 3: Trigeminal Schwannoma</u></b></p> <p>A review of the surgical approaches as well as non-surgical treatment of trigeminal schwannoma. This session should be attended by neurosurgeons, ENT surgeons, and radiation oncologists.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Compare surgical approaches for the treatment of trigeminal schwannoma.</li> <li>» Evaluate the outcome of radiation treatment for trigeminal schwannoma.</li> <li>» Develop the most appropriate treatment option for trigeminal schwannoma.</li> </ul>	Deer/Scorpion

1:20pm-2:20pm

## **Hot Topic 4: Cavernous Sinus Management – Preserving Function**

*Bird/Roadrunner*

Review the different surgical approaches to cavernous sinus pathologies with an emphasis on neurologic outcome. This session should be attending by Neurosurgeons, Otolaryngologists, Ophthalmologists, and Radiation Oncologists

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

- » Evaluate the advantages and disadvantages of open versus endoscopic approaches to cavernous sinus pathology with an emphasis on neurologic outcome.
- » Evaluate the functional outcomes associated with radiation and radiosurgery for treatment of cavernous sinus lesions.
- » Review the natural history of common cavernous sinus pathologies in regards to the risk of treatment.

2:25pm-3:25pm

## **Video Session 1: Posterior Fossa Surgery**

*Buzzard/Coyote/  
Eagle*

Video session demonstrating complex cases utilizing novel approaches to the posterior fossa. Neurosurgery, Neuro-otology, Neuroradiology providers/fellows/residents and associated care providers will benefit from the unique video presentations.

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

- » Recognize optimal approaches for complex posterior fossa pathologies.
- » Develop/Evolve a complex posterior fossa reconstruction ladder based on video presentations presented.
- » Recognize limitations and inclusion/exclusion criteria based on video and oral presentations.

2:25pm-3:25pm

## **Video Session 2: Orbital Surgery**

*Pipai Kave I*

This session will explore orbital pathologies and surgical approaches from a multidisciplinary perspective. Skull Base Surgeons with backgrounds in Neurosurgery, Otolaryngology, Ophthalmology, Neuroradiology and fellows/residents/advanced care team providers will benefit from this session.

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

- » Identify novel/nuanced multi-disciplinary techniques for advanced orbital pathology.
- » Implement novel approaches and repair techniques into practice for orbital pathologies.
- » Develop multidisciplinary consideration of approach for complex skull base and orbital pathologies.

## 2:25pm-3:25pm **Video Session 3: Suprasellar and Anterior Fossa Surgery**

*Deer/Scorpion*

This session highlights complex suprasellar and anterior fossa approaches in a clinically relevant, video-based format. Multidisciplinary Skull Base Teams with backgrounds in Neurosurgery, Otolaryngology, Ophthalmology, Neuroradiology and fellows/residents/advanced care team providers will benefit from this session.

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

- » Assess utility of video-demonstrated approaches to complex Anterior Fossa and Suprasellar pathologies.
- » Compare risks and benefits of open vs endoscopic approaches to Anterior Fossa and Suprasellar pathologies.
- » Recognize multiple extirpative and reconstructive techniques that may be implemented for Anterior Fossa and Suprasellar pathologies.

## 2:25pm-3:25pm **Video Session 4: Petrous and Petroclival**

*Bird/Roadrunner*

This session will provide video-based presentations of expert-level petrous apex and petroclival pathologies and related approaches. Pros and cons of surgical, pathology-specific and reconstructive considerations relative to the practices of neurosurgery, otolaryngology (head and neck, neuro-otology and rhinology), neuroradiology, and fellows/residents/advanced care team providers will be examined.

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

- » Determine appropriate open anterior, endoscopic and lateral approaches for pathologies of the petrous apex and petroclival regions.
- » Recognize disease and anatomic considerations of lesions in these areas that may portend post treatment aspects.
- » Distinguish limitations of current treatment options as well as optimal cases for combined approaches.

## 3:30pm-4:00pm **Break in Exhibit Hall**

*Akimel Ballroom*



## 4:00pm-6:05pm **Skull Base Reconstruction Day**

*Komatke Ballroom*

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## 4:00pm-6:05pm **Primer Course**

*Jackrabbit*

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## 4:00pm-5:00pm **Proffered Papers Session 1: Anatomy**

*Buzzard/Coyote/  
Eagle*

**001: MICROSURGICAL ANATOMY OF THE DORSAL CLINOIDAL SPACE: IMPLICATIONS FOR ENDOSCOPIC ENDONASAL PARASELLAR SURGERY** - Yuanzhi Xu, MD<sup>1</sup>; Maximiliano A Nunez, MD<sup>1</sup>; Ahmed Mohyeldin, MD, PhD<sup>1</sup>; Vera Vigo, MD<sup>1</sup>; Ying Mao, MD<sup>2</sup>; Aaron A Cohen-Gadol<sup>3</sup>; Juan Carlos Fernandez-Miranda, MD<sup>1</sup>; <sup>1</sup>Stanford University; <sup>2</sup>Shanghai Medical College, Fudan University; <sup>3</sup>Indiana University

**002: THE LINGUAL PROCESS OF THE SPHENOID BONE AND THE PETROLINGUAL LIGAMENT: DESCRIPTION, LANDMARKS AND CLINICAL RELEVANCE** - Luciano Leone<sup>1</sup>; Natalia Rezende<sup>1</sup>; Alex Y Alexander<sup>1</sup>; Carlos Pinheiro-Neto<sup>2</sup>; Maria Peris-Celda<sup>1</sup>; <sup>1</sup>Department of Neurologic Surgery, Mayo Clinic, Rochester, MN - USA; <sup>2</sup>Division of Rhinology and Skull Base Surgery, Department of Otolaryngology - Head & Neck Surgery, Mayo Clinic, Rochester, MN - USA

**003: MICROSURGICAL ANATOMY OF THE PITUITARY GLAND AND DISCOVERY OF THE PITUITARY TENTORIUM** - Ahmed Mohyeldin, MD<sup>1</sup>; Maximiliano Alberto Nunez, MD<sup>1</sup>; Yuanzhi Xu, MD<sup>1</sup>; Vera Vigo, MD<sup>1</sup>; Karam P Asmaro<sup>1</sup>; Aaron A Cohen-Gadol, MD<sup>2</sup>; Juan Fernandez-Miranda, MD<sup>1</sup>; <sup>1</sup>Stanford; <sup>2</sup>Indiana University

**004: RELIABLE ANATOMIC LANDMARKS TO AVOID TROCHLEA INJURY DURING ANTERIOR SKULL BASE SURGERY** - Luke A Silveira; John Muse, MD; Adam Olszewski, MD; Brandon Liebelt, MD; University of Vermont

**005: MATURATION OF THE INTERNAL AUDITORY CANAL AND POSTERIOR PETROUS BONE WITH PEDIATRIC DEVELOPMENT: SURGICAL RELEVANCE FOR LATERAL AND POSTEROLATERAL SKULL BASE APPROACHES** - Robert C Rennert, MD<sup>1</sup>; Michael G Brandel, MD, MAS<sup>1</sup>; Jeffrey A Steinberg, MD<sup>1</sup>; Rick A Friedman, MD, PhD<sup>1</sup>; William T Couldwell, MD, PhD<sup>2</sup>; Takanori Fukushima, MD<sup>3</sup>; John D Day, MD<sup>4</sup>; Alexander A Khalessi, MD, MS, FAANS<sup>1</sup>; Michael L Levy, MD, PhD<sup>1</sup>; <sup>1</sup>UCSD; <sup>2</sup>University of Utah; <sup>3</sup>Carolina Neuroscience Institute; <sup>4</sup>University of Arkansas

**006: A REAPPRAISAL OF THE ANATOMY OF THE FRONTOTEMPORAL BRANCH OF THE FACIAL NERVE** - Maximiliano A Nunez, MD<sup>1</sup>; Ahmed Mohyeldin, MD, PhD<sup>1</sup>; Vera Vigo, MD<sup>1</sup>; Yuanzhi Xu, MD<sup>1</sup>; Aaron A Cohen-Gadol, MD<sup>2</sup>; Juan Carlos Fernandez-Miranda, MD<sup>1</sup>; <sup>1</sup>Stanford University; <sup>2</sup>Indiana University

**007: THE ENDOSCOPIC ENDONASAL APPROACH TO THE PITUITARY GLAND AND MEDIAL WALL OF THE CAVERNOUS SINUS: A STEPWISE TECHNIQUE USING VOLUMETRIC MODELS FROM ANATOMICAL DISSECTIONS.** - Vera Vigo, MD<sup>1</sup>; Maximiliano A Nunez, MD<sup>1</sup>; Yuanzhi Xu, MD<sup>1</sup>; Pasquale De Bonis, MD, PhD<sup>2</sup>; Zara M Patel, MD<sup>1</sup>; Peter H Hwang, MD<sup>1</sup>; Jayakar Nayak, MD<sup>1</sup>; Juan Carlos Fernandez-Miranda, MD<sup>1</sup>; <sup>1</sup>Stanford University; <sup>2</sup>University of Ferrara

## 4:00pm-5:00pm **Proffered Papers Session 2: Reconstruction/Neurovascular Surgery**

*Pipai Kave I*

**008: SKULL BASE RECONSTRUCTION USING MICROVASCULAR FREE TISSUE TRANSFER: A RETROSPECTIVE EXPERIENCE** - Basit A Jawad, MD; Yash J Patil, MD; University of Cincinnati Medical Center

**009: ENDOSCOPIC REPAIR OF CRANIAL BASE DEFECTS USING A BILAYER BUTTON GRAFT: A TECHNICAL UPDATE AND 10 YEARS OF EXPERIENCE** - [Alexander N Duffy, MD](#); Mark Chaskes, MD; Gurston Nyquist, MD; Theodore Klug, MD; Michael Karsy, MD; Blair Barton, MD; Elina Toskala, MD, PhD, MPH; Mindy Rabinowitz; Adam Luginbuhl; Christopher Farrell, MD; Marc Rosen; James Evans; Thomas Jefferson University Hospital

**010: ENDOSCOPIC REPAIR OF IATROGENIC CAROTID ARTERY INJURY USING A LATERAL TONGUE MUSCLE PATCH** - [Nikita Chapurin, MD, MHS](#); Miriam R Smetak, MD; Madelyn N Stevens, MD; Naweed I Chowdhury, MD; Rakesh Chandra, MD, MMHC; Justin H Turner, MD, PhD; Paul T Russell, MD; Vanderbilt University Medical Center

**011: BESPOKE SKULL BASE RECONSTRUCTION USING PATIENT-SPECIFIC THREE DIMENSIONAL PREOPERATIVE SURGICAL PLANNER** - [Cody J Smith, MD](#); Sean Copeland; Nicholas Deep, MD; Thomas Nagel, MD; Daniela Barbery, PhD; Bernard Bendok, MD; Peter Weisskopf, MD; Mayo Clinic Arizona

**012: THE COMBINED PTERIONALLY INTERHEMISPHERIC APPROACH AS A SOLUTION OF DOUBLE ANEURYSMS IN THE AREA OF ANTERIOR COMMUNICATING ARTERY AND INTERHEMISPHERIC HAEMATOMA AND HEMOCEPHALUS** - [Jan Hemza, MD, PhD, et, PhD, MPA](#); Faculty Hospital at saint Ann, Dpt. of Neurosurgery

**014: REDEFINING THE CAROTID CAVE IN THE EVALUATION AND MANAGEMENT OF PARAOLINOID SEGMENT ANEURYSMS** - [Giyarpuram N Prashant<sup>1</sup>](#); Sharon Bossert<sup>2</sup>; Huy Truong<sup>3</sup>; Salomon Cohen-Cohen<sup>3</sup>; Nathan Zwagerman<sup>3</sup>; Juan C Fernandez-Miranda<sup>4</sup>; Paul A Gardner<sup>2</sup>; Amir R Dehdashti<sup>2</sup>; <sup>1</sup>Thomas Jefferson University; <sup>2</sup>North Shore University Hospital; <sup>3</sup>University of Pittsburgh; <sup>4</sup>Stanford University

4:00pm-5:00pm

**Proffered Papers Session 3: Tumor Biology/Cavernous Sinus Tumor**

*Deer/Scorpion*

**016: THE ROLE OF INTEGRATION AND HPV STATUS IN MALIGNANT TRANSFORMATION OF INVERTED PAPILOMAS** - [Wesley H Stepp, MD, PhD](#); Adam J Kimple, MD, PhD; Charles S Ebert Jr, MD, MPH; Brent Senior, MD; Brian D Thorp, MD; UNC

**017: SMARCB1-DEFICIENT AND SMARCB1-RETAINED SINONASAL UNDIFFERENTIATED CARCINOMA (SNUC) SUBTYPES ARE GENETICALLY DISTINCT: A PILOT STUDY USING RNA SEQUENCING** - [Chandala Chitguppi](#); Adam Ertel; Stacey Gargano; Sankar Addya; Gaurav Kumar; Glen DSouza; Jennifer Johnson; Voichita BarAd; James J Evans; Elina Toskala; Gurston Nyquist; Marc Rosen; Mindy Rabinowitz; Thomas Jefferson University Hospital, Philadelphia

**018: ESTABLISHMENT OF NOVEL SINONASAL NUT CARCINOMA CELL LINES** - [Yoko Takahashi, PhD](#); Diana Bell, MD; Tong-Xin Xie, MD, PhD; Renata Ferrarotto, MD; Brandon Gunn, MD; Shaan Raza, MD; Moran Amit, MD, PhD; Jeffrey N Myers, MD, PhD; Ehab Y Hanna, MD; The University of Texas MD Anderson Cancer Center

## 019: RADIOMIC CORRELATES OF HEARING LOSS IN

**VESTIBULAR SCHWANNOMAS** - [Lea M Alhilali, MD<sup>1</sup>](#); Shawn Stevens, MD<sup>1</sup>; Michael Lawton, MD<sup>1</sup>; Kaith Alfmety, MD<sup>1</sup>; Andrew Little, MD<sup>1</sup>; Kris Smith, MD<sup>1</sup>; Kevin King, MD<sup>1</sup>; Saeed Fakhraan<sup>2</sup>; Randall Porter, MD<sup>1</sup>; <sup>1</sup>Barrow Neurological Institute; <sup>2</sup>Radiology Partners

## 020: SURVEY OF SKULL BASE SURGEONS' MANAGEMENT OF CARCINOMAS INVOLVING THE CAVERNOUS SINUS

- [Nicole M Mott, BS<sup>1</sup>](#); Carl H Snyderman, MD, MBA<sup>2</sup>; Erin L McKean, MD, MBA<sup>3</sup>; <sup>1</sup>University of Michigan Medical School; <sup>2</sup>University of Pittsburgh, Department of Otolaryngology-Head and Neck Surgery; <sup>3</sup>University of Michigan, Department of Otolaryngology-Head and Neck Surgery

## 021: TRANSCAVERNOUS APPROACH FOR SKULL BASE TUMORS AND VASCULAR PATHOLOGIES: SINGLE

**INSTITUTION EXPERIENCE OF 41 CASES** - [R A C B Santiago, MD](#); M Mandel, MD, PhD; B Ibrahim, MD; M Obrzut, MD; B Adada, MD; H Borghei-Razavi, MD; Cleveland Clinic Florida

## 022: THE DIAGNOSTIC ACCURACY OF MAGNETIC RESONANCE IMAGING IN PREDICTING CAVERNOUS SINUS INVASION

**OF PITUITARY TUMORS** - [Karam Paul Asmaro, MD](#); Ahmed Mohyeldin, MD; Vera Vigo, MD; Maximiliano A Nunez, MD; Juan Fernandez-Miranda; Stanford Health Care

## 023: INTRACRANIAL BREAKTHROUGH OF INVASIVE PITUITARY ADENOMAS VIA CAVERNOUS TRIANGLES: AN ANATOMICAL, RADIOLOGICAL, AND MICROSURGICAL

**STUDY** - [Yuanzhi Xu, MD<sup>1</sup>](#); Ahmed Mohyeldin, MD, PhD<sup>1</sup>; Maximiliano A Nunez, MD<sup>1</sup>; Vera Vigo, MD<sup>1</sup>; Ayoze Doniz-Gonzalez, MD<sup>1</sup>; Yaohua Liu, MD<sup>2</sup>; Aaron A Cohen-Gadol, MD<sup>3</sup>; Juan Carlos Fernandez-Miranda, MD<sup>1</sup>; Meiqing Lou, MD, PhD<sup>2</sup>; <sup>1</sup>Stanford University; <sup>2</sup>Shanghai Jiao Tong University; <sup>3</sup>Indiana University

4:00pm-5:00pm

## Proffered Papers Session 4: CSF Leaks

*Bird/Roadrunner*

## 024: MULTIFOCAL SKULL BASE DEFECTS IN THE SETTING OF SPONTANEOUS CSF LEAK SECONDARY TO IDIOPATHIC INTRACRANIAL HYPERTENSION

- Peter Filip, MD<sup>1</sup>; [Pedro Escobedo<sup>2</sup>](#); Ali Z Piracha<sup>2</sup>; Joe D Morrison, MD<sup>2</sup>; Sarah Khalife, MD<sup>2</sup>; Stephan Munich, Assistant Professor<sup>2</sup>; Webster Crowley, Associate Professor<sup>2</sup>; Peter Papagiannopoulos, Assistant Professor<sup>2</sup>; Bobby Tajudeen, Assistant Professor<sup>2</sup>; Pete S Batra, Stanton Friedberg Chair Professor<sup>2</sup>; <sup>1</sup>Mount Sinai Hospital; <sup>2</sup>Rush Medical Center

## 025: POSTOPERATIVE CEREBROSPINAL FLUID LEAKS FOLLOWING NO INTRAOPERATIVE LEAK: A MULTI-

**INSTITUTIONAL STUDY** - [Rijul S Kshirsagar, MD<sup>1</sup>](#); Karam P Asmaro, MD<sup>2</sup>; Jacob G Eide, MD<sup>1</sup>; Peter Filip, MD<sup>3</sup>; Dhiraj Pangal, BS<sup>4</sup>; Jacob Ruzevik, MD<sup>4</sup>; Nithin D Adappa, MD<sup>1</sup>; Pete S Batra, MD<sup>5</sup>; Marvin Bergsneider, MD<sup>6</sup>; Juan C Fernandez-Miranda, MD<sup>2</sup>; Paul A Gardner, MD<sup>7</sup>; M. Sean Grady, MD<sup>1</sup>; Frank P Hsu, MD, PhD<sup>8</sup>; Ahmed Mohyeldin, MD, PhD<sup>8</sup>; James N Palmer, MD<sup>1</sup>; Peter Papagiannopoulos, MD<sup>5</sup>; Carl H Snyderman, MD<sup>7</sup>; Bobby A Tajudeen, MD<sup>5</sup>; Eric W Wang, MD<sup>7</sup>; Marilene B Wang, MD<sup>6</sup>; Gabriel Zada, MD<sup>4</sup>; Georgios A Zenonos, MD<sup>7</sup>; Edward C Kuan, MD, MBA<sup>8</sup>; <sup>1</sup>University of Pennsylvania; <sup>2</sup>Stanford University; <sup>3</sup>Mount Sinai Hospital; <sup>4</sup>University of Southern California; <sup>5</sup>Rush University; <sup>6</sup>University of California, Los Angeles; <sup>7</sup>University of Pittsburgh; <sup>8</sup>University of California, Irvine

**026: ANALYSIS OF POSTOPERATIVE OPIOID USE ON INCIDENCE OF NAUSEA/VOMITING AND CEREBROSPINAL FLUID LEAK FOLLOWING ENDOSCOPIC ENDONASAL SKULL BASE TUMOR RESECTION** - [Justin Chan, BS<sup>1</sup>](#); Joshua Lopez, BA<sup>1</sup>; Dhiraj J Pangal, BS<sup>1</sup>; Bozena B Wrobel, MD<sup>2</sup>; Elisabeth H Ference, MD<sup>2</sup>; Jacob Ruzevick, MD<sup>1</sup>; Gabriel Zada, MD<sup>1</sup>; <sup>1</sup>USC Department of Neurosurgery, Keck School of Medicine of the University of Southern California; <sup>2</sup>Caruso Department of Otolaryngology-Head and Neck Surgery, Keck School of Medicine of the University of Southern California

**027: INCIDENCE OF NASAL CEREBROSPINAL FLUID LEAKS IN PATIENTS PRESENTING WITH UNILATERAL CLEAR RHINORRHEA** - [William Mason, MD<sup>1</sup>](#); Alan Kulawczyk<sup>2</sup>; John R Craig, MD<sup>2</sup>; <sup>1</sup>Wayne State University School of Medicine; <sup>2</sup>Henry Ford Health System

**028: REPAIR OF SPONTANEOUS CEREBROSPINAL FLUID LEAKS WITH TEGMEN DEFECTS UTILIZING A VASCULARIZED TEMPORALIS FASCIA GRAFT VIA THE MIDDLE FOSSA APPROACH: CLINICAL SERIES AND DESCRIPTION OF TECHNIQUE** - [Kaith K Almefty, MD<sup>1</sup>](#); Arnau Benet, MD<sup>1</sup>; Christina Sarris, MD<sup>1</sup>; Colin J Przybylowski, MD<sup>1</sup>; Shawn M Stevens, MD<sup>1</sup>; Mark Whitaker, MD<sup>2</sup>; <sup>1</sup>Barrow Neurological Institute; <sup>2</sup>Penn State University

**029: UTILITY OF NONPENETRATING TITANIUM CLIP FOR PRIMARY REPAIR OF INTRAOPERATIVE CSF LEAK IN ENDOSCOPIC ENDONASAL APPROACH FOR TUMOR RESECTION - SINGLE INSTITUTIONAL EXPERIENCE.** - [Matthew Sun](#); Benjamin Uy; Shannon Esswein; Marilene Wang; Marvin Bergsneider; UCLA

**031: RISK FACTORS AND PREDICTORS OF INTRAOPERATIVE CEREBROSPINAL FLUID LEAK AFTER ENDOSCOPIC TRANSNASAL TRANSPHENOIDAL SURGERY FOR TUMOR RESECTION: A 1088 PATIENT PROSPECTIVELY COLLECTED SERIES** - [Sophie M Peeters, MD<sup>1</sup>](#); Morcos Nakhla<sup>1</sup>; Gennadiy Vengerovich<sup>2</sup>; Huan Zhang<sup>1</sup>; Marvin Bergsneider<sup>1</sup>; Won Kim<sup>1</sup>; Jivianne Lee<sup>1</sup>; Jeffrey Suh<sup>1</sup>; Marilene Wang<sup>1</sup>; <sup>1</sup>UCLA; <sup>2</sup>Florida ENT Care

5:05pm-6:05pm

**Proffered Papers Session 5: Clival Tumors**
*Buzzard/Coyote/  
Eagle*

**032: ESTABLISHING PROGNOSTIC DNA METHYLATION-BASED CHORDOMA SUBGROUPS IN TISSUE THAT ARE DETECTABLE IN PLASMA** - [Jeffrey A Zuccato<sup>1</sup>](#); Vikas Patil<sup>2</sup>; Sheila Mansouri<sup>2</sup>; Jeffrey C Liu<sup>2</sup>; Farshad Nassiri<sup>1</sup>; Yasin Mamatjan<sup>2</sup>; Ankur Chakravarthy<sup>2</sup>; Shirin Karimi<sup>2</sup>; Joao Paulo Almeida<sup>1</sup>; Anne-Laure Bernat<sup>3</sup>; Mohammed Hasen<sup>4</sup>; Olivia Singh<sup>2</sup>; Shahbaz Khan<sup>2</sup>; Thomas Kislinger<sup>2</sup>; Namita Sinha<sup>4</sup>; Sébastien Froelich<sup>3</sup>; Homa Adle-Biassette<sup>5</sup>; Kenneth D Aldape<sup>6</sup>; Daniel D De Carvalho<sup>2</sup>; Gelareh Zadeh<sup>1</sup>; <sup>1</sup>University of Toronto; <sup>2</sup>University Health Network; <sup>3</sup>Université Paris Diderot; <sup>4</sup>University of Manitoba; <sup>5</sup>Université de Paris; <sup>6</sup>National Cancer Institute



**033: HIGH-THROUGHPUT SCREENING OF FDA-APPROVED COMPOUNDS, VALIDATED WITH THREE SEPARATE XENOGRAFT MODELS, IDENTIFIES BRIGATINIB AS A POTENTIAL TREATMENT FOR RECURRENT AND METASTATIC CHORDOMAS.** - [Philip D Tatman](#)<sup>1</sup>; Tadeusz Wroblewski<sup>1</sup>; Anthony Fringuello<sup>1</sup>; Sam Scherer<sup>1</sup>; Will Foreman<sup>1</sup>; Denise Damek, MD<sup>2</sup>; Kevin Lillehei, MD<sup>1</sup>; Samy Youssef, MD, PhD<sup>1</sup>; Ryan Ormond, MD, PhD<sup>1</sup>; Michael Graner, PhD<sup>1</sup>; <sup>1</sup>University of Colorado, Department of Neurosurgery; <sup>2</sup>University of Colorado, Department of Neuro-oncology

**034: SKULL BASE CHORDOMAS PRESENTING WITH CRANIAL NERVE VI DEFICITS: CHARACTERISTICS AND PREDICTIVE FACTORS FOR DEFICIT IMPROVEMENT OR RESOLUTION** - [Nallammai Muthiah](#); Zachary Gersey, MD; Laura Le; Hussein Abdallah; Eric Wang, MD; Carl Synderman; Paul A Gardner, MD; Georgios Zenonos, MD; University of Pittsburgh Medical Center

**035: A RARE CASE OF CLIVAL PARANGLIOMA** - [Rachel Moor](#); Dimitri Laurent; Nichole Allen; Brandon Lucke-Wold; Si Chen; Marie Rivera-Zengotita; William Friedman; Maryam Rahman; Matthew Koch; University of Florida

**036: PREDICTORS OF OVERALL SURVIVAL IN SKULL BASE CHORDOMA** - [Zachary C Gersey, MD](#)<sup>1</sup>; Paulomi Gohel, BS<sup>1</sup>; Nallammai Muthiah, BS<sup>1</sup>; Hussein Abdallah, BS<sup>1</sup>; Eric W Wang, MD<sup>2</sup>; Carl H Snyderman, MD<sup>2</sup>; Paul A Gardner, MD<sup>1</sup>; Georgios A Zenonos, MD<sup>1</sup>; <sup>1</sup>Department of Neurological Surgery, University of Pittsburgh; <sup>2</sup>Department of Otolaryngology, University of Pittsburgh

**037: SURGICAL TREATMENT OF SKULL BASE CHORDOMAS EXTENDING TO THE ATLANTOAXIAL SPINE IN THE PEDIATRIC POPULATION** - [Nolan J Brown](#)<sup>1</sup>; Matthew Liu<sup>2</sup>; Julian Gendreau, MD<sup>3</sup>; Joshua Loya, MD<sup>2</sup>; Ronald Sahyouni, MD, MS, PhD<sup>2</sup>; James Lee, MD<sup>4</sup>; Mickey Abraham, MD, MS<sup>2</sup>; David Gonda, MD<sup>2</sup>; Michael Levy, MD<sup>2</sup>; <sup>1</sup>University of California, Irvine; <sup>2</sup>University of California, San Diego; <sup>3</sup>Johns Hopkins; <sup>4</sup>Mayo Clinic

**039: THE INFLUENCE OF FACILITY VOLUME AND TYPE ON SKULL BASE CHORDOMA TREATMENT AND OUTCOMES** - [Amy T Du, BS](#)<sup>1</sup>; Kelsey Roman, BS<sup>2</sup>; Sina J Torabi, MD<sup>2</sup>; Brandon M Lehigh, BS<sup>3</sup>; Arash Abiri, BS<sup>2</sup>; Khodayar Goshtasbi, MD<sup>2</sup>; Michael G Kim, MD<sup>2</sup>; Ahmed Mohyeldin, MD, PhD<sup>2</sup>; Frank P.K. Hsu, MD, PhD<sup>2</sup>; Edward C Kuan, MD, MBA<sup>2</sup>; <sup>1</sup>Charles E. Schmidt College of Medicine, Florida Atlantic University; <sup>2</sup>University of California, Irvine School of Medicine; <sup>3</sup>University of Pittsburgh School of Medicine

5:05pm-6:05pm

**Proffered Papers Session 6: Meningiomas**
*Pipai Kave I*

**040: DNA METHYL TRANSFERASE INHIBITION IN MENINGIOMAS** - [Tadeusz H Wroblewski](#)<sup>1</sup>; Philip D Tatman<sup>1</sup>; Anthony R Fringuello<sup>1</sup>; Samuel S Scherer<sup>1</sup>; William B Foreman<sup>1</sup>; Denise M Damek<sup>1</sup>; Kevin Lillehei<sup>1</sup>; Randy L Jensen<sup>2</sup>; A. Samy Youssef<sup>1</sup>; D. Ryan Ormond<sup>1</sup>; Michael W Graner<sup>1</sup>; <sup>1</sup>University of Colorado, Anschutz Medical Campus; <sup>2</sup>Huntsman Cancer Institute, University of Utah

## 041: PROPOSED RADIOGRAPHIC PARAMETERS TO GUIDE SELECTION OF SURGICAL APPROACH FOR OLFACTORY GROOVE MENINGIOMA

- [Christina Jackson, MD](#); Derek K Kong, MD; Georgios A Zenonos, MD; Eric Wang, MD; Paul A Gardner, MD; Carl H Snyderman, MD; University of Pittsburgh Medical Center

## 042: PROLIFERATION INDEX CORRELATES WITH LONG-TERM RECURRENCE AFTER COMPLETE RESECTION OF WHO GRADE I MENINGIOMA

- [Minh P Nguyen, BS](#)<sup>1</sup>; [Ramin A Morshed, MD](#)<sup>1</sup>; Cecilia L Dalle Ore, MD<sup>1</sup>; Daniel D Cummins, BS<sup>1</sup>; Satvir Saggi, BS<sup>1</sup>; Stephen T Magill, MD, PhD<sup>2</sup>; Michael W McDermott, MD<sup>3</sup>; Philip V Theodosopoulos, MD<sup>1</sup>; <sup>1</sup>University of California, San Francisco; <sup>2</sup>Northwestern University; <sup>3</sup>Miami Neuroscience Institute

## 043: A TRANSCRIPTOMIC BIOMARKER FOR PREDICTING MENINGIOMA RECURRENCE, SURVIVAL AND RADIOTHERAPY RESPONSE

- William C Chen, MD<sup>1</sup>; Abrar Choudhury<sup>1</sup>; Harish N Vasudevan, MD, PhD<sup>1</sup>; Calixto-Hope G Lucas, MD<sup>1</sup>; Minh P Nguyen, BS<sup>1</sup>; Jacob S Young, MD<sup>1</sup>; Theresa Yu<sup>2</sup>; Tai-Chung Lam<sup>2</sup>; Jenny K Pu<sup>2</sup>; Lai-Fung Li<sup>2</sup>; Gilberto K Leung<sup>2</sup>; Jason W Chan<sup>1</sup>; Nancy Ann Oberheim Bush, MD, PhD<sup>1</sup>; Javier E Villanueva-Meyer<sup>1</sup>; Jessica Schulte<sup>3</sup>; Steve E Braunstein, MD<sup>1</sup>; Nicholas Butowski, MD<sup>1</sup>; Penny K Sneed, MD<sup>1</sup>; Mitchel S Berger, MD<sup>1</sup>; Arie Perry, MD<sup>1</sup>; David A Solomon, MD, PhD<sup>1</sup>; Michael W McDermott, MD<sup>4</sup>; David R Raleigh, MD, PhD<sup>1</sup>; [Stephen T Magill, MD, PhD](#)<sup>5</sup>; <sup>1</sup>University of California, San Francisco; <sup>2</sup>University of Hong Kong; <sup>3</sup>University of California, San Diego; <sup>4</sup>Baptist Health, South Florida; <sup>5</sup>Northwestern University, Feinberg School of Medicine

## 044: HIGH THROUGHPUT SCREENING OF MENINGIOMAS IDENTIFIES PROTEASOME INHIBITION AS A POTENTIAL TREATMENT AVENUE

- [Tadeusz H Wroblewski](#)<sup>1</sup>; Philip D Tatman<sup>1</sup>; Anthony R Fringuello<sup>1</sup>; Samuel R Scherer<sup>1</sup>; William B Foreman<sup>1</sup>; Denise M Damek, MD<sup>1</sup>; Kevin Lillehei, MD<sup>1</sup>; Randy L Jenson, MD, PhD<sup>2</sup>; A. Samy Youssef, MD, PhD<sup>1</sup>; D. Ryan Ormond, MD, PhD<sup>1</sup>; Michael W Graner, PhD<sup>1</sup>; <sup>1</sup>University of Colorado, Anschutz Medical Campus; <sup>2</sup>Huntsman Cancer Institute, University of Utah

## 156: PREDICTORS OF VISUAL OUTCOMES AFTER SURGICAL MANAGEMENT OF ANTERIOR CLINOID MENINGIOMAS: A SINGLE SURGEON'S EXPERIENCE

- [Salomon Cohen Cohen](#)<sup>1</sup>; Christopher Graffeo<sup>1</sup>; Avital Perry<sup>2</sup>; Edgar Botello-Hernandez<sup>1</sup>; Andrea Tooley<sup>1</sup>; Michael J Link<sup>1</sup>; <sup>1</sup>Mayo Clinic, Rochester; <sup>2</sup>Chaim Sheba Medical Center, Tel Aviv, Israel

## 046: TRAF7 MUTATED SUBGROUPS DIFFER IN SPHENOID WING MENINGIOMAS WITH HYPEROSTOSIS

- Lan Jin<sup>1</sup>; Shaurey Vetsal<sup>1</sup>; Sagar Vasandani<sup>1</sup>; Arushii Nadar<sup>1</sup>; Mark W Youngblood<sup>2</sup>; Trisha Gupta<sup>1</sup>; Tanyeri Barak<sup>1</sup>; Kanat Yalcin<sup>1</sup>; Stephanie Marie Aguilera<sup>1</sup>; Ketu Mishra-Gorur<sup>1</sup>; Nicholas A Blondin<sup>3</sup>; Evan Gorelick<sup>1</sup>; S. Bulent Omay<sup>1</sup>; Renelle Pointdujour-Lim<sup>3</sup>; Benjamin L Judson<sup>3</sup>; Michael Alperovich<sup>3</sup>; Mariam S Aboian<sup>3</sup>; Neelan Marianayagam<sup>1</sup>; Declan McGuone<sup>3</sup>; Murat Gunel<sup>1</sup>; Zeynep Erson-Omay<sup>1</sup>; Robert K Fulbright<sup>3</sup>; [Jennifer Moliterno](#)<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Yale School of Medicine; <sup>2</sup>Department of Neurological Surgery, Northwestern University; <sup>3</sup>Yale Brain Tumor Center, Smilow Cancer Hospital

5:05pm-6:05pm

## Proffered Papers Session 7: Training and Education

Deer/Scorpion

### 048: THE BOND BETWEEN NEUROANATOMY LABORATORIES AND NEUROSURGERY: HISTORICAL ASSESSMENT AND IMPACT ON SURGICAL TRAINING

- Dimitri Benner; Jubran H. Jubran; [Lena Mary Houlihan](#); Ann J. Staudinger Knoll; Marian Park; Christopher S. Graffeo; Michael T. Lawton; Mark C. Preul; Barrow Neurological Institute

### 049: AUTOMATIC ASSESSMENT OF SURGICAL PERFORMANCE USING INTRAOPERATIVE VIDEO AND DEEP LEARNING: A COMPARISON WITH EXPERT SURGEON VIDEO REVIEW

- [Dhiraj J Pangal, BS](#)<sup>1</sup>; Guillaume Kugener, MEng<sup>1</sup>; Yichao Zhu<sup>2</sup>; Aditya Sinha, BS<sup>3</sup>; Vyom Unadkat<sup>2</sup>; David J Cote, MD<sup>1</sup>; Arman Roshannai<sup>1</sup>; Ben Strickland, MD<sup>1</sup>; Martin Rutkowski, MD<sup>4</sup>; Andrew Hung, MD<sup>5</sup>; Animashree Anandkumar, PhD<sup>6</sup>; X. Y. Han, PhD<sup>7</sup>; Vardan Papyan, PhD<sup>8</sup>; Bozena Wrobel, MD<sup>9</sup>; Gabriel Zada, MD<sup>1</sup>; Daniel A Donoho<sup>10</sup>; <sup>1</sup>USC Department of Neurosurgery; <sup>2</sup>Viterbi School of Engineering, University of Southern California; <sup>3</sup>Google, Inc; <sup>4</sup>Medical College of Georgia; <sup>5</sup>USC Department of Urology; <sup>6</sup>California Institute of Technology; <sup>7</sup>Operations Research and Information Engineering, Cornell University; <sup>8</sup>Department of Mathematics, University of Toronto; <sup>9</sup>USC Department of Head and Neck Surgery; <sup>10</sup>Division of Neurosurgery, Children's National Medical Center

### 050: TOOL-TISSUE INTERACTION FORCES IN GLIOMA SURGERY

- [Abdulrahman Albakr, MD](#); Amir Baghdadi, PhD; Rahul Singh, BSc; Sanju Lama, MD, PhD; Garnette R Sutherland, MD, FRCS; University of Calgary

### 051: A PLAYBOOK FOR NEUROSURGICAL RESIDENT TRAINING IN SKULL BASE SURGERY

- Jeremy Ciporen, MD; [Robert B. Unger](#); Bryan Schreiner; Brandi Pang; Oregon Health and Science University

### 052: THE OPTIMAL CADAVERIC MODEL; A META-ANALYSIS OF INJECTION, PARENCHYMAL AND PRESERVATION TECHNIQUES IN NEUROANATOMY

- Jubran H. Jubran; [Lena Mary Houlihan](#); Jacob T. Howshar; Marian Park; Dimitri Benner; Dara S. Farhadi; Ann J. Staudinger Knoll; Irakliy Abramov; Mark C. Preul; Barrow Neurological Institute

### 054: OUR EXPERIENCE IN CONDUCTING A MULTI-CENTER CROSS-SPECIALTY RETROSPECTIVE REVIEW STUDY: VICTORIES AND LESSONS LEARNED

- [Sara Saleh, MD](#)<sup>1</sup>; Varun Kshetry, MD<sup>2</sup>; Erin McKean, MD, MBA<sup>1</sup>; <sup>1</sup>University of Michigan; <sup>2</sup>Cleveland Clinic

### 055: STEREOSCOPIC PHOTOGRAMMETRY: TECHNICAL NOTE ON THE FUTURE OF SKULL BASE EDUCATION

- [Luciano Leonel](#)<sup>1</sup>; Yohan A Alexander<sup>1</sup>; Carlos D Pinheiro-Neto<sup>2</sup>; Michael Link<sup>1</sup>; Jonathan M Morris<sup>3</sup>; Maria Peris-Celda<sup>1</sup>; <sup>1</sup>Department of Neurologic Surgery, Mayo Clinic, Rochester, MN - USA; <sup>2</sup>Division of Rhinology and Skull Base Surgery, Department of Otolaryngology - Head & Neck Surgery, Mayo Clinic, Rochester, MN - USA; <sup>3</sup>Department of Radiology, Mayo Clinic, Rochester, Minnesota

5:05pm-6:05pm

## **Proffered Papers Session 8: Vestibular Schwannomas**

*Bird/Roadrunner*

**056: IS THERE A PLATEAU TO THE LEARNING CURVE FOR ACOUSTIC NEUROMA RESECTION? FACIAL NERVE OUTCOMES AND EXTENT OF RESECTION BY A SINGLE INTERDISCIPLINARY TEAM OVER THIRTY YEARS** - Daniel Heiferman<sup>1</sup>; Loren Riedy<sup>2</sup>; [Elhaum Rezaii](#)<sup>3</sup>; Cara Joyce<sup>4</sup>; Mary Moore<sup>4</sup>; Rachyl Shanker<sup>3</sup>; Kurt Grahnke<sup>3</sup>; Giselle Malina<sup>5</sup>; Caroline Szujewski<sup>2</sup>; Sarah Finucane<sup>6</sup>; John P Leonetti<sup>6</sup>; Douglas E Anderson<sup>3</sup>; <sup>1</sup>Department of Neurological Surgery, Semmes-Murphey Clinic; <sup>2</sup>Department of Neurobiology, University of Chicago; <sup>3</sup>Department of Neurological Surgery, Loyola University Stritch School of Medicine; <sup>4</sup>Clinic Research Office, Loyola University Stritch School of Medicine; <sup>5</sup>Department of Emergency Medicine, Harvard Medical School; <sup>6</sup>Department of Otolaryngology, Loyola University Stritch School of Medicine

**057: ACOUSTIC NEUROMA GRADING SYSTEM: AN EVIDENCE BASED SURGICAL GRADING SYSTEM FOR LARGE-TO-GIANT VESTIBULAR SCHWANNOMA** - [Nida Fatima](#), MD; Anna Dine; Gregory P Lekovic, MD, PhD; The House Institute Foundation

**059: RETROSIGMOID REVISION RESECTION OF VESTIBULAR SCHWANNOMA AFTER PRIOR MIDDLE CRANIAL FOSSA RESECTION WITH HEARING PRESERVATION** - [Edward Doyle](#), MD; Brendon Warner, BS; Mario Zuccarello, MD; Ravi N Samy, MD; University of Cincinnati

**060: MANAGEMENT OF ACOUSTIC NEUROMA WITH CONTRALATERAL MENIERE'S DISEASE: CASE REPORT AND REVIEW OF LITERATURE** - [Steven C Goicoechea](#)<sup>1</sup>; Sullivan Smith, MD<sup>2</sup>; Matthew L Kircher, MD<sup>3</sup>; Dennis M Moore, MD<sup>3</sup>; Douglas E Anderson, MD<sup>3</sup>; John P Leonetti, MD<sup>3</sup>; <sup>1</sup>Loyola University Chicago Stritch School of Medicine; <sup>2</sup>Department of Otolaryngology - Head and Neck Surgery, Loyola University Medical Center; <sup>3</sup>Loyola Center for Cranial Base Tumors, Loyola University Medical Center

**058: THE RELATIONSHIP BETWEEN NF-2 ASSOCIATED VESTIBULAR SCHWANNOMA TUMOR SIZE AND THE DEGREE OF HEARING IMPAIRMENT** - [Adam A Karkoutli](#); Moises A Arriaga, MD; Louisiana State University Health Sciences Center New Orleans

**061: OUTCOMES IN VESTIBULAR SCHWANNOMA TREATED WITH PRIMARY MICROSURGERY: CLINICAL LANDSCAPE** - [Alexander Landry](#), MD; Kaiyun Yang, MD, PhD; Justin Wang, MD; Andrew Gao; Gelareh Zadeh, MD, PhD; University of Toronto

6:05pm-7:35pm

## **Welcome Reception & Poster Viewing in Exhibit Hall**

## Saturday, February 19, 2022

Time (Mountain Time Zone)	Session	Location
7:30am-9:35am	<b><u>Global Education Day</u></b> <p>The Global Education Day will provide a comprehensive and worldwide view of different skull base surgical approaches as well as skull base pathologies through the vantage point of our distinguished roster of invited international speakers. The program is geared for neurosurgeons, otolaryngologists and related disciplines involved in the care of these patients around the world. The session will be divided into two components: Surgical Approaches to the Skull Base and Case-based review Skull Base Pathology.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Recognize the indications and contraindications of open vs. endoscopic approaches to the skull base.</li> <li>» Demonstrate the application of key anatomical landmarks for skull base approaches.</li> <li>» Develop a step-wise approach for the diagnosis and management of different skull base conditions.</li> </ul>	Komatke Ballroom
7:30am-8:30am	<b><u>Main Topic 6: NASBS Research Committee Update and Research Showcase</u></b> <p>The NASBS Research Committee is pleased to update the membership on the work being done on behalf of the NASBS membership for the past year. In addition, we will be announcing the winners of the latest NASBS research grant cycle. We will be showcasing research supported by NASBS research grants to update the membership on the work being done to move our field further forward.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Discuss the work being done by the NASBS under the purview of the Research Committee and how it relates to the practice of skull base surgery</li> <li>» Summarize the relevance of research and scholarly activity supported by the NASBS through the Research Committee</li> <li>» Synthesize ways that the research and scholarly activities of NASBS under the auspice of the Research Committee can apply to one's own body of work and knowledge.</li> </ul>	Jackrabbit

**7:30am-8:30am**     **Main Topic 7: Recalcitrant Meningiomas with Normal CN Function**

*Buzzard/Coyote/  
Eagle*

After common maximal treatment of skull base meningiomas with cranial nerve involvement, some treatments fail. This session concentrates on practice management of meningiomas resistant to standard therapy.

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

- » Understand standard therapy for common skull base meningiomas.
- » Gain appreciation for management strategies of skull base meningiomas resistant to standard therapy.
- » Understand the impact of WHO grade on management strategy for meningiomas.

**7:30am-8:30am**     **Main Topic 8: Orbital and Transorbital Surgery**

*Pipai Kave I*

Orbital and Transorbital surgery is becoming more reliant on skull base teams often with ophthalmology, ENT, and Neurosurgery involved. This session highlights state of the art orbital surgery.

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

- » Gain appreciation of the anatomy pertinent to endoscopic orbital surgery.
- » Understand modern management of graves ophthalmopathy.
- » Gain practical knowledge of orbital and transorbital surgery useful to your practice.

**7:30am-8:30am**     **Main Topic 9: The Role of Endovascular Surgery in Cranial Base Pathology**

*Deer/Scorpion*

Endovascular surgery plays a critical role in assisting quality skull base surgery, this session aims to provide a global overview of endovascular surgery's importance in the comprehensive skull base team.

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

- » Understand the spectrum of embolization techniques and how they can help you.
- » Understand how carotid occlusion studies help predict surgical need for bypass and risk of ischemic complications.
- » Gain appreciation of carotid artery injury management and the role of endovascular surgery.



**7:30am-8:30am**

## **Main Topic 10: State of the Art in Paragangliomas**

*Bird/Roadrunner*

Glomus tumors represent an uncommon yet critical tumor to understand for skull surgery teams, this session aims to further education and provide state of the art treatment for these complex tumors.

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

- » Understand the Genetics of Glomus tumors.
- » Gain an appreciation of the complexity of Glomus tumors.
- » Continue to develop practice management parameters for Glomus tumors.

**7:30am-9:35am**

## **RHOTON ROOM: Dueling Dissections - Endonasal vs Transcranial - Session 1: Suprasellar and Paraclinoid Regions**

*Pipai Kave II&III*

Endonasal and transcranial routes are competing but also complementary approaches to the skull base. In this session we will review the surgical anatomy of the paraclinoid and suprasellar space, and we will discuss the pros and cons of endonasal and transcranial approaches to these regions. Attendance is recommended for all trainees and skull base specialties with an interest in treating pathology located in the suprasellar and paraclinoid regions.

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

- » Develop a better understanding of the surgical anatomy of the paraclinoid and suprasellar regions.
- » Recognize key surgical landmarks and technical nuances for the endonasal and transcranial approaches to the paraclinoid and suprasellar regions.
- » Compare the benefits and disadvantages of endonasal and transcranial approaches to the paraclinoid and suprasellar regions.

**8:35am-9:35am**

## **Expert Debate 6: Benefits and Pitfalls of Proton vs Photon Based Radiation Therapy**

*Jackrabbit*

This expert debate session will feature discussions surrounding the benefits and pitfalls of proton versus photon-based radiotherapy. Moderators will present cases to expert panelists, who will offer insights on the indications for each treatment modality.

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

- » Recognize the key differences between proton and photon-based radiotherapy.
- » Discuss evidence-based outcomes for proton therapy.
- » Develop a treatment algorithm that includes both types of radiotherapy.

- 8:35am-9:35am**     **Expert Debate 7: Jugular Foramen Paragangliomas – Operate or Radiate**     *Buzzard/Coyote/Eagle*
- This expert debate session will feature case presentations and discussions surrounding the optimal treatment strategy for jugular foramen paragangliomas.
- At the conclusion of this session, attendees will be able to:
- » Recognize the benefits and pitfalls of surgery vs radiation in the management of jugular foramen paragangliomas.
  - » Develop a treatment algorithm that can be applied in the clinical setting.
  - » Develop a framework for assisting patients to make an informed treatment decision.
- 8:35am-9:35am**     **Expert Debate 8: The Best Strategy in Skull Base Meningioma Management**     *Pipai Kave I*
- This expert debate session will feature challenging cases of skull base meningiomas. Management strategies will be discussed, with an emphasis on surgical approaches.
- At the conclusion of this session, attendees will be able to:
- » Identify the various surgical approaches for skull base meningiomas.
  - » Recognize the pros and cons of each surgical approach.
  - » Discuss the role of nonsurgical therapy for meningiomas.
- 8:35am-9:35am**     **Expert Debate 9: Sinonasal Malignancies T4b (Infratemporal Fossa and Skull Base Involvement) – Surgery vs Neoadjuvant**     *Deer/Scorpion*
- This expert debate session will feature case presentations of T4b sinonasal malignancies involving the skull base and infratemporal fossa. Management strategies will be discussed, with an emphasis on the controversies surrounding surgery versus neoadjuvant chemoradiation.
- At the conclusion of this session, attendees will be able to:
- » Identify and evaluate treatment options for patients with sinonasal malignancies involving the skull base and infratemporal fossa.
  - » Discuss evidence-based outcomes and controversies for each treatment modality.
  - » Develop a framework for assisting patients to make an informed treatment decision.
- 8:35am-9:35am**     **Expert Debate 10: Skull Base Coding**     *Bird/Roadrunner*
- This expert debate session will feature discussions surrounding coding and reimbursement strategies for skull base surgical procedures. Listed vs. unlisted coding will also be discussed.
- At the conclusion of this session, attendees will be able to:
- » Discuss best practices pertaining to coding and reimbursement in skull base surgery.
  - » Recognize pitfalls in compliance.
  - » Identify opportunities for updating procedure terminology and coding.

# Full Program



**9:35am-10:05am** ***Break in Exhibit Hall***

*Akimel Ballroom*

**10:05am-12:20pm** **General Session**

*Komatke Ballroom*

Presidential Daily Announcements  
Keynote Speakers Presentation  
NASBS Travel Scholarship Award Recipients Announcement  
Abstract Awards Announcement  
Surgical Education Committee Presentation  
Honored Guest Speaker Presentations

**12:20pm-1:20pm** ***Lunch in Exhibit Hall***

*Akimel Ballroom*

**1:20pm-2:20pm** **Hot Topic 5: Jugular Foramen Surgery**

*Buzzard/Coyote/  
Eagle*

Review the different treatment options and approaches for tumors involving the jugular foramen. This should be attended by neurosurgeons, head and neck surgeons, otolaryngologists, and radiation oncologists.

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

- » Evaluate the different surgical approaches to the jugular foramen.
- » Evaluate the radiotherapy options for the treatment of jugular foramen tumors.
- » Develop a multimodality algorithm for management of jugular foramen tumors.

**1:20pm-2:20pm** **Hot Topic 6: Chordoma and Chondrosarcomas**

*Pipai Kave I*

Review the multimodal treatment options necessary for treatment of chordomas and chondrosarcomas. This should be attended by neurosurgeons, otolaryngologists, radiation oncologist, and medical oncologists.

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

- » Recognize the appropriate surgical approach or combination of approaches necessary to achieve maximum resection.
- » Implement an appropriate radiation therapy strategy.
- » Understand the utility of tumor biology for the management of these tumors.

1:20pm-2:20pm	<b><u>Special Session 1: Updates in Medical Management of Skull Base Tumors</u></b>	<i>Bird/Roadrunner</i>
	<p>Disease control strategies for benign and malignant skull base tumors have primarily focused on surgery and radiation options, however, medical options are emerging in the management of these tumors as well. This sessions will focus on providing an update on contemporary and emerging medical treatments for selected benign and malignant skull base tumors. Any provider who cares for these tumors is encouraged to attend to learn about these options.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Identify skull base tumors which have targetable mutations for systemic therapy.</li> <li>» Distinguish which patients are appropriate for systemic therapy options.</li> <li>» Identify where to find active clinical trials that are appropriate for skull base tumor patients.</li> </ul>	
1:20pm-2:20pm	<b><u>Women in Skull Base Surgery</u></b>	<i>Deer/Scorpion</i>
	<p>This session is dedicated to using other's "biggest challenges" as a way to identify the barriers to the recruitment of women to skull base in order to be able to develop realistic solutions to create change. Participants should include both men and women dedicated to this effort.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Identify the barriers to recruitment of women in skull base at large (and at their respective institutions).</li> <li>» Use the experience of others to predict future challenges.</li> <li>» Develop realistic strategies of how to react to and solve these challenges.</li> <li>» Recognize national mentors.</li> </ul>	
1:20pm-2:20pm	<b><u>Jeopardy</u></b>	<i>Komatke Ballroom</i>
	<p>Florida Gators (aka University of Florida) vs. Boomer Sooner (University of Oklahoma)</p>	

1:20pm-3:25pm

**RHOTON ROOM: Dueling Dissections - Endonasal vs Transcranial - Session 2: Cavernous Sinus and Meckel's Cave/ Middle Fossa/Petrous Apex**

*Pipai Kave II&III*

Endoscopic endonasal and transcranial approaches are competing but also complementary approaches to the skull base. In this session we will review the 3D surgical anatomy of the cavernous sinus, Meckle's cave, middle fossa and petrous apex, and we will discuss the pros and cons of endonasal and transcranial approaches to these areas. Attendance is recommended for all trainees and faculty with an interest in managing pathology in these locations.

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

- » Develop a better understanding of the surgical anatomy of the cavernous sinus, Meckle's cave, middle fossa and petrous apex regions.
- » Recognize key surgical landmarks and technical nuances for the endonasal and transcranial approach to the cavernous sinus, Meckle's cave, middle fossa and petrous apex regions.
- » Compare the benefits and disadvantages of endonasal and transcranial approaches to the cavernous sinus, Meckle's cave, middle fossa and petrous apex regions.

2:25pm-3:25pm

**Global Education Day**

*Komatke Ballroom*

The Global Education Day will provide a comprehensive and worldwide view of different skull base surgical approaches as well as skull base pathologies through the vantage point of our distinguished roster of invited international speakers. The program is geared for neurosurgeons, otolaryngologists and related disciplines involved in the care of these patients around the world. The session will be divided into two components: Surgical Approaches to the Skull Base and Case-based review Skull Base Pathology.

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

- » Recognize the indications and contraindications of open vs. endoscopic approaches to the skull base.
- » Demonstrate the application of key anatomical landmarks for skull base approaches.
- » Develop a step-wise approach for the diagnosis and management of different skull base conditions.

2:25pm-3:25pm

## **Video Session 5: Vascular Injury Management**

Vascular injuries in skull base surgery, although rare, may lead to catastrophic consequences. Neurosurgery, Otolaryngology and skull base surgeons and fellows/residents/advanced care providers from all subspecialties should attend.

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

- » Diagnose areas of high risk for vascular injury.
- » Recognize landmarks that may assist with injury prevention.
- » Identify immediately and long-term treatment considerations when vascular injuries occur in skull base surgery.

*Buzzard/Coyote/  
Eagle*

2:25pm-3:25pm

## **Video Session 6: Tips and Tricks in Pituitary Surgery**

This video session focuses on approaches and techniques to optimize surgical treatment of disease in the pituitary and sellar region. Neurosurgery, Otolaryngology and anterior skull base teams/providers/fellows/residents and advanced care providers should attend.

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

- » Recognize anatomic landmarks that assist with expert level pituitary pathologies.
- » Discriminate between advanced, resectable disease processes and plan for potential extended/alternative approaches.
- » Employ extirpative and reconstructive approaches for consideration in appropriate candidates.

*Pipai Kave I*

2:25pm-3:25pm

## **Special Session 2: Imaging Advances in Skull Base Pathologies**

This session will focus on how imaging advances are helping better understand the relationship of various skull base pathologies with normal anatomy as well as more precisely predict behavior of these pathologies and their subsequent outcome after treatment. All providers who diagnose and follow a variety of skull base pathologies are encouraged to attend.

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

- » Recognize the ability and limitations of imaging to predict invasiveness of benign and malignant skull base tumors.
- » Distinguish how imaging can help identify the location of cranial nerves and how that knowledge translates into the clinical setting.
- » Articulate how machine learning can help predict behavior of cerebral aneurysms as well as classify and predict outcomes after surgery for tumors.

*Deer/Scorpion*



**2:25pm-3:25pm** **Special Session 3: Young Members Forum – Building a Practice**

*Bird/Roadrunner*

This session will focus on the `how to` aspects of building a practice. Within skull base surgery, specific focus will be placed on partnership building and balance high quality outcome expectations with gaining experience. Residents, fellows, and skull base surgeons early in practice will most benefit from this session.

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

- » Identify factors that set up successful skull base partnerships.
- » Balance priorities between gaining experience, educating trainees, and optimizing patient outcomes.
- » Employ strategies that will lead to successful professional development during the early phase of surgical career.

**3:30pm-4:00pm** **Break in the Exhibit Hall**

*Akimel Ballroom*

**4:00pm-5:00pm** **Proffered Papers Session 9: Craniopharyngioma**

*Buzzard/Coyote/  
Eagle*

**063: ENDOSCOPIC VERSUS NONENDOSCOPIC SURGERY FOR RESECTION OF CRANIOPHARYNGIOMAS** - Arash Abiri, BS<sup>1</sup>; Khodayar Goshtasbi, MD<sup>1</sup>; Sina J Torabi, MD<sup>1</sup>; Brandon M Lehigh, BS<sup>2</sup>; Ahmed Mohyeldin, MD, PhD<sup>1</sup>; Frank P Hsu, MD, PhD<sup>1</sup>; Edward C Kuan, MD, MBA<sup>1</sup>; <sup>1</sup>University of California, Irvine; <sup>2</sup>University of Pittsburgh and Carnegie Mellon University

**064: PERIOPERATIVE COMPLICATIONS IN ENDOSCOPIC ENDONASAL VERSUS TRANSCRANIAL RESECTIONS OF ADULT CRANIOPHARYNGIOMAS.** - Vaidya Govindarajan<sup>1</sup>; Evan Luther, MD<sup>1</sup>; Alexis Morell, MD<sup>1</sup>; Joshua Burks, MD<sup>1</sup>; Hunter King<sup>2</sup>; Daniel Eichberg, MD<sup>1</sup>; Victor Lu, MD<sup>1</sup>; Ashish Shah, MD<sup>1</sup>; Gurvinder Kaur, MD<sup>1</sup>; Ricardo Komotar, MD<sup>1</sup>; Michael Ivan<sup>1</sup>; <sup>1</sup>University of Miami Miller School of Medicine; <sup>2</sup>Drexel College of Medicine

**065: MICROSURGICAL ANATOMY OF THE HYPOTHALAMUS APPLIED TO CRANIOPHARYNGIOMA RESECTION** - Vera Vigo, MD<sup>1</sup>; Maximiliano Nunez, MD<sup>1</sup>; Yuanzhi Xu, MD<sup>1</sup>; Aaron A Cohen-Gadol, MD<sup>2</sup>; Juan Carlos Fernandez-Miranda, MD<sup>1</sup>; <sup>1</sup>Stanford University; <sup>2</sup>Indiana University

**066: ENDONASAL ENDOSCOPY VS TRANSCRANIAL MICROSURGERY FOR LARGE SUPRASELLAR CRANIOPHARYNGIOMAS** - Sivashanmugam Dhandapani; Ninad Patil; Sushant Sahoo; Pravin Salunke; Roshan Verma; Rijuneeta Gupta; PGIMER, Chandigarh, India

**067: EVOLUTION OF SURGICAL OUTCOMES IN ENDOSCOPIC ENDONASAL RESECTION OF CRANIOPHARYNGIOMAS** - Siyuan Yu, BA<sup>1</sup>; Mohammad Taghvaei, MD<sup>1</sup>; Maikerly Reyes<sup>1</sup>; Sarah Collopy, BS<sup>1</sup>; Keenan Piper<sup>1</sup>; Michael Karsy, MD, PhD, MSc<sup>1</sup>; Giyapuram Prashant, MD<sup>1</sup>; Varun Kshetty<sup>1</sup>; Marc R Rosen, MD<sup>2</sup>; Christopher Farrell<sup>1</sup>; James J Evans<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Thomas Jefferson University Hospital, Philadelphia, PA; <sup>2</sup>Department of Otolaryngology, Thomas Jefferson University Hospital, Philadelphia, PA

**068: PRESERVATION OF PITUITARY FUNCTION VIA PEDIATRIC CRANIOPHARYNGIOMA FENESTRATION** - [Jacob G Eide, MD<sup>1</sup>](#); Rijul S Kshirsagar, MD<sup>1</sup>; Phillip B Storm, MD<sup>2</sup>; Nithin D Adappa, MD<sup>1</sup>; James N Palmer, MD<sup>1</sup>; <sup>1</sup>University of Pennsylvania; <sup>2</sup>Children's Hospital of Pennsylvania

**069: ENDOSCOPIC ENDONASAL SURGERY FOR CRANIOPHARYNGIOMAS: BIOLOGICAL AND TECHNICAL LIMITATIONS FOR RESECTION** - [David T Fernandes Cabral, MD](#); Ali Alattar, MD; Georgios A Zenonos, MD; Eric Wang, MD; Carl H Snyderman, MD, MBA; Paul Gardner, MD; University of Pittsburgh Medical Center

**070: CHARACTERISTICS AND OUTCOMES IN PEDIATRIC VERSUS ADULT CRANIOPHARYNGIOMAS: A SYSTEMATIC REVIEW AND META-ANALYSIS** - [Jonathan C Pang, BA<sup>1</sup>](#); Dean Chung, BA<sup>1</sup>; Andrew Ovakimyan, BS<sup>1</sup>; Michael G Kim, MD<sup>2</sup>; Alexander S Himstead, BS<sup>1</sup>; Brian V Lien, MS<sup>1</sup>; Zachary Hsu, BA<sup>2</sup>; Ahmed Mohyeldin, MD, PhD<sup>2</sup>; Frank P K Hsu, MD, PhD<sup>2</sup>; Edward C Kuan, MD, MBA<sup>3</sup>; <sup>1</sup>University of California, Irvine, School of Medicine, Irvine, CA, USA; <sup>2</sup>Department of Neurological Surgery, University of California, Irvine, Orange, CA, USA; <sup>3</sup>Department of Otolaryngology-Head and Neck Surgery, University of California, Irvine, Orange, CA, USA

4:00pm-5:00pm

**Proffered Papers Session 10: Skull Base Surgery — Miscellaneous**

*Pipai Kave I*

**071: UTILIZING THE NUTRITIONAL RISK INDEX AS A PREDICTOR OF POSTOPERATIVE COMPLICATIONS IN VENTRAL SKULL BASE SURGERY** - [Rushi Patel, BA<sup>1</sup>](#); Christopher C Tseng, BS<sup>1</sup>; Sudeepti Vedula, BS<sup>1</sup>; David Zakay, MD<sup>1</sup>; Prayag Patel, MD<sup>1</sup>; Christina H Fang, MD<sup>2</sup>; Jordon Grube, DO<sup>3</sup>; Wayne D Hsueh, MD<sup>1</sup>; Jean A Eloy, MD, FACS, FARS<sup>1</sup>; <sup>1</sup>Rutgers New Jersey Medical School; <sup>2</sup>Albert Einstein College of Medicine; <sup>3</sup>Saint Barnabas Medical Center

**072: EXTENT OF RESECTION AND FACIAL NERVE OUTCOME AFTER TWO-STAGE POSTERIOR TRANSPETROSAL SURGERY FOR PETROCLIVAL MENINGIOMAS IN COMPARISON TO THE RETROSIGMOID APPROACH** - [Tarek A Rayan, MD](#); Ahmed H Galal, MD; Ahmed A Fayed, MD; Mahmoud A Abbassy, MD; Alexandria University

**073: COMBINED ENDOSCOPIC ENDONASAL AND TRANSORBITAL MULTIPORTAL APPROACH FOR COMPLEX SKULL BASE LESIONS INVOLVING MULTIPLE COMPARTMENTS.** - [Won Jae Lee, MD](#); Sang Duk Hong, MD, PhD; Kyung In Woo, MD, PhD; Ho Jun Seol, MD, PhD; Jung Won Choi, MD, PhD; Jung-IL Lee, MD, PhD; Do-Hyun Nam, MD, PhD; Doo-Sik Kong, MD, PhD; Samsung Medical Center

**074: ENDOSCOPIC ODONTOIDECTOMY AND ADJUVANT CERVICAL FUSION SURGERY: A SINGLE SURGICAL CENTER EXPERIENCE** - [Paavali Hannikainen, BS<sup>1</sup>](#); Teddy Klug, MD, MPH<sup>2</sup>; Glen D'Souza, MD<sup>1</sup>; Elina Toskala, MD, PhD, MBA<sup>1</sup>; Mindy Rabinowitz, MD<sup>1</sup>; Christopher Farrell, MD<sup>1</sup>; Marc Rosen, MD<sup>1</sup>; Gurston Nyquist, MD<sup>1</sup>; James Evans, MD<sup>1</sup>; <sup>1</sup>Thomas Jefferson University Hospital; <sup>2</sup>The University of Tennessee Health Science Center

## **075: IMPACT OF DIABETES ON POST-OPERATIVE OUTCOMES FOLLOWING ANTERIOR SKULL BASE SURGERY** - [Samantha Shave](#);

Samer T Elsamna, BA; Prayag Patel, MD; Jean Anderson Eloy; Rutgers New Jersey Medical School, Department of Otolaryngology-Head & Neck Surgery

## **076: COMPARING INTRAOPERATIVE TIME FOR SKULL BASE SURGERY TO MEDICARE WORK TIME** - [Rushi Patel, BA](#);

Christopher C Tseng, BS<sup>1</sup>; Meet Patel, BA<sup>1</sup>; Sudeepti Vedula, BS<sup>1</sup>; Prayag Patel, MD<sup>1</sup>; Christina H Fang, MD<sup>2</sup>; Jordon Grube, DO<sup>3</sup>; Wayne D Hsueh, MD<sup>1</sup>; Jean A Eloy, MD, FACS, FARS<sup>1</sup>; <sup>1</sup>Rutgers New Jersey Medical School; <sup>2</sup>Albert Einstein College of Medicine; <sup>3</sup>Saint Barnabas Medical Center

## **077: MULTIREGIONAL SKULL BASE DEFECTS: A SINGLE INSTITUTION EXPERIENCE** - [Jacob Poynter](#);

Jeb Justice; Brian Lobo; Yulia Orlova; Patrick Antonelli; Si Chen; University of florida

## **078: COMPARATIVE ANATOMICAL ASSESSMENT OF FULL VERSUS LIMITED TRANSCAVERNOUS EXPOSURE OF THE CAROTID-OCULOMOTOR WINDOW** - [Tyler S Cole, MD](#);

Mark C Preul, MD; Michael T Lawton, MD; Barrow Neurological Institute

4:00pm-5:00pm

### **Proffered Papers Session 11: Keyhole/Endonasal Approaches**

*Deer/Scorpion*

## **079: EFFECTIVENESS OF PREOPERATIVE ANTISEPTIC PREPARATION IN ENDOSCOPIC TRANSNASAL SKULL BASE SURGERY: A RANDOMIZED THREE-ARM MULTI-CENTER CONTROLLED TRIAL: PRELIMINARY RESULTS** - [Basim Noor Elahi, MD](#);

Abdullah Alatar, MBBS<sup>2</sup>; Saad Alsaleh, MBBS, FRCSC<sup>3</sup>; Ashwag Alqurashi, MD<sup>2</sup>; Sarah Bin Abdulqader, MD<sup>4</sup>; Saud Alromaih, MD, FRCSC<sup>3</sup>; Ahmad Alroqi, MD<sup>3</sup>; Abdulaziz Alrasheed, MBBS, FRCSC<sup>3</sup>; Lolo Aldhwaihy, MD<sup>3</sup>; Sarah Basindwah, MD<sup>2</sup>; Mohammed Bafaquh, BS, RN, MD<sup>4</sup>; Gmaan Alzhrani, MD, MA<sup>4</sup>; Abdullah Alobaid, MD<sup>4</sup>; Fahad Alfawwaz, MD<sup>5</sup>; Faisal Farrash, MD<sup>6</sup>; Ghassan Alokby, MD<sup>7</sup>; Othman Alhammad, MD<sup>6</sup>; Abdulrazag Ajlan, MD, FRCSC<sup>2</sup>; <sup>1</sup>King Saud University, Riyadh, Saudi Arabia; <sup>2</sup>Division of Neurosurgery, College of Medicine, King Saud University, Riyadh, Saudi Arabia; <sup>3</sup>Department of Otolaryngology - Head & Neck Surgery, College of Medicine, King Saud University, Riyadh, Saudi Arabia; <sup>4</sup>Department of Neurosurgery, National Neuroscience Institute, King Fahad Medical City, Riyadh, Saudi Arabia; <sup>5</sup>Department of Otorhinolaryngology, King Fahad Medical City, Riyadh, Saudi Arabia; <sup>6</sup>Department of Neuroscience, King Faisal Specialist Hospital and Research Center, Riyadh, Saudi Arabia; <sup>7</sup>Department of Otolaryngology-Head and Neck Surgery, King Faisal Specialist Hospital & Research Center, Riyadh, Saudi Arabia

## **080: SUPRAORBITAL KEYHOLE CRANIOTOMY VIA EYEBROW INCISION: A SYSTEMATIC REVIEW AND META-ANALYSIS** - [Catherine Peterson](#);

Zoe Robinow; Kiarash Shahlaie; UC Davis

## **081: SURGICAL MANAGEMENT OF ANTERIOR OPTIC PATHWAY INDETERMINATE LESIONS** - [Eduardo J Medina, BS](#);

Juan M Revuelta Barbero, MD, PhD<sup>1</sup>; Edoardo Porto, MD<sup>1</sup>; Emily Barrow, MD<sup>2</sup>; Tomas Garzon-Muvdi, MD, MS<sup>1</sup>; C. Arturo Solares, MD<sup>2</sup>; Gustavo Pradilla<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Emory University, Atlanta; <sup>2</sup>Department of Otolaryngology Head and Neck Surgery, Emory University, Atlanta, Georgia, USA

## **082: ENDOSCOPIC MULTIPORTAL SUBTEMPORAL APPROACH TO MIDDLE CRANIAL FOSSA FLOOR** - [Edoardo Porto, MD<sup>1</sup>](#); Juan

M Revuelta Barbero, MD, PhD<sup>1</sup>; Eduardo J Medina, BS<sup>1</sup>; Roberto M Soriano, MD<sup>2</sup>; Candace E Hobson, MD<sup>2</sup>; Esther X Vivas, MD<sup>2</sup>; Clementino A Solares, MD<sup>2</sup>; Gustavo Pradilla, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Emory University, Atlanta, Georgia, USA; <sup>2</sup>Department of Otolaryngology Head and Neck Surgery, Emory University, Atlanta, Georgia, USA

## **083: DEVELOPMENT AND VALIDATION OF A PREDICTIVE SCORING MODEL FOR COMPLICATIONS FOLLOWING ENDOSCOPIC ENDONASAL SKULL BASE SURGERY** - [Joshua Vignolles-Jeong, BA<sup>1</sup>](#); Daniel Kreamsoulas, MD<sup>2</sup>; Daniel M

Prevedello, MD<sup>2</sup>; Ricardo L Carrau, MD<sup>3</sup>; Douglas A Hardesty, MD<sup>2</sup>; <sup>1</sup>The Ohio State University College of Medicine; <sup>2</sup>Department of Neurosurgery, The Ohio State University Wexner Medical Center; <sup>3</sup>Department of Otolaryngology-Head and Neck Surgery, The Ohio State University Wexner Medical Center

## **084: AN UPDATED MINI-PTERIONAL APPROACH PRESERVING TEMPORALIS MUSCLE ATTACHMENT: TECHNICAL NOTE AND CASE SERIES.** - José Orenday-Barraza, MD<sup>1</sup>; [Tiffany Odell, DO<sup>2</sup>](#);

María José Cavagnaro, MD<sup>1</sup>; Michaela Lee, MD<sup>2</sup>; Peter Nakaji, MD<sup>2</sup>; <sup>1</sup>University of Arizona; <sup>2</sup>Banner University Medical Center Phoenix

## **086: PARAMEDIAN SKULL-BASE: CLASSIFICATION OF ENDOSCOPIC TRANSNASAL APPROACHES AND ANATOMICAL STUDY** - Ashwag Alqurashi, MD<sup>1</sup>; Hussain Albaharna, MD<sup>2</sup>;

Mohammad Alshareed, MD<sup>1</sup>; [Basim Noor Elahi, MD<sup>1</sup>](#); Abdulaziz Alrasheed, MBBS, MSc, FRCSC<sup>1</sup>; Ahmad Alroqi, MD<sup>1</sup>; Saad Alsaleh, MBBS, FRCSC<sup>1</sup>; Abdulrazag Aylan, MD, MSc, UCNSD, FRCSC<sup>1</sup>; <sup>1</sup>King Saud University; <sup>2</sup>Qatif Central Hospital

**4:00pm-5:00pm** **Proffered Papers Session 12: Pituitary**

*Bird/Roadrunner*

## **087: SOMATOTROPH ADENOMAS HAVE A PREDILECTION TO INVADE THE CAVERNOUS SINUS AND RESECTION OF THE MEDIAL WALL OF THE CAVERNOUS SINUS OFFERS THE HIGHEST POTENTIAL FOR BIOCHEMICAL REMISSION IN ACROMEGALY** - [Ahmed Mohyeldin, MD, PhD](#); Yuanzhi Xu;

Maximiliano Alberto Nunez; Ashoke Khanwalker; Zara Patel; Jayakar Nayak; Peter Hwang; Laurence Katznelson; Juan Fernandez-Miranda, MD; Stanford

## **088: A NOVEL HUMAN PITUITARY ADENOMA ORGANOID MODEL TO ACCELERATE TARGETED TREATMENT OF CUSHING'S DISEASE** - Jayati Chakrabarti<sup>1</sup>; Jennifer Eschbacher<sup>2</sup>;

Saptarshi Mallick<sup>1</sup>; Kelvin W Pond<sup>1</sup>; Kevin Yuen<sup>2</sup>; Curtis Thorne<sup>1</sup>; Andrew S Little<sup>2</sup>; [Yana Zavros<sup>1</sup>](#); <sup>1</sup>University of Arizona College of Medicine; <sup>2</sup>Barrow Neurological Institute, Phoenix

## **089: FROM THE OR TO THE BENCH: NOVEL MECHANISMS IN CUSHING'S DISEASE PITUITARY TUMOR GROWTH AND HYPERSECRETION** - [Logan J Massman](#); Michael Pereckas, PhD;

Stephanie Olivier-Van Stichelen, PhD; Nathan T Zwagerman, MD; Medical College of Wisconsin

## 090: THE RAPID CONSORTIUM: A PLATFORM FOR CLINICAL AND TRANSLATIONAL PITUITARY TUMOR RESEARCH

- [Andrew S Little, MD<sup>1</sup>](#); Paul Gardner, MD<sup>2</sup>; Michael Chicoine, MD<sup>3</sup>; Varun Kshettry, MD<sup>4</sup>; Juan Fernandez-Miranda, MD<sup>5</sup>; James Evans, MD<sup>6</sup>; Garni Barkhoudarian, MD<sup>7</sup>; Douglas Hardesty, MD<sup>8</sup>; Ildiko Torok, MD<sup>1</sup>; Won Kim, MD<sup>9</sup>; Gabriel Zada, MD<sup>10</sup>; Michael Karsy<sup>11</sup>; <sup>1</sup>Barrow Neurological Institute; <sup>2</sup>University of Pittsburgh Medical Center; <sup>3</sup>Washington University; <sup>4</sup>Cleveland Clinic Foundation; <sup>5</sup>Stanford University; <sup>6</sup>Jefferson University; <sup>7</sup>Providence St Johns Medical Center; <sup>8</sup>The Ohio State University; <sup>9</sup>University of California, Los Angeles; <sup>10</sup>University of Southern California; <sup>11</sup>University of Utah

## 091: ENDOSCOPIC ENDONASAL SURGERY FOR PROLACTINOMAS: PROGNOSTIC FACTORS FOR DISEASE CONTROL AND MANAGEMENT OF PERSISTENT DISEASE.

- [Aristotelis Kalyvas, MD, PhD<sup>1</sup>](#); Joao Paolo Almeida, MD, PhD<sup>2</sup>; Farshad Nassiri, MD, PhD<sup>1</sup>; Philip J O'Halloran, MD, PhD<sup>1</sup>; Nilesh Mohan, MD<sup>1</sup>; Vincent C Ye, MD<sup>1</sup>; Dennis M Tang, MD<sup>3</sup>; Pranay Soni, MD<sup>2</sup>; Tamia Potter<sup>4</sup>; Shereen Ezzat, MD, PhD<sup>5</sup>; Varun R Kshettry, MD<sup>2</sup>; Gelareh Zadeh, MD, PhD<sup>1</sup>; Pablo F Recinos, MD<sup>2</sup>; Fred Gentili, MD, MSc<sup>1</sup>; <sup>1</sup>Division of Neurosurgery, Toronto Western Hospital, University of Toronto, Toronto, ON, Canada; <sup>2</sup>Department of Neurological Surgery, Neurological Institute, Cleveland Clinic, Cleveland, OH, United States; <sup>3</sup>Department of Otolaryngology, Cleveland Clinic, Cleveland, OH, United States.; <sup>4</sup>School of Medicine, Case Western Reserve University, Cleveland, OH, United States.; <sup>5</sup>Endocrine Oncology Site, Princess Margaret Cancer Center, University of Toronto, Toronto, ON, Canada

## 092: INTRAOPERATIVE GROWTH HORMONE FOR PREDICTION OF LONG-TERM OUTCOME AFTER SURGERY FOR ACROMEGALY

- [Marcus Zachariah<sup>1</sup>](#); Jordan Bozer<sup>1</sup>; Abdulaziz Alrasheed<sup>2</sup>; Luma Ghalib<sup>3</sup>; Ricardo Carrau<sup>3</sup>; Daniel Prevedello<sup>3</sup>; <sup>1</sup>University of Mississippi Medical Center; <sup>2</sup>King Saud Medical City; <sup>3</sup>Ohio State University

## 094: OUTCOME MEASURES FOR MEDICAL AND SURGICAL TREATMENT OF PROLACTINOMAS. IS THE ROLE OF SURGERY UNDERESTIMATED?

- [Andrius Anuzis](#); Kevin Lillehei; University of Colorado Anschutz Medical Centre

4:00pm-6:05pm

## **RHOTON ROOM: Dueling Dissections - Endonasal vs Transcranial - Session 3: Petroclival Region**

*Pipai Kave II&III*

Endoscopic endonasal and transcranial approaches are competing but also complementary approaches to the skull base. In this session we will review the 3D surgical anatomy of the petroclival region, and we will discuss the pros and cons of endonasal and transcranial approaches to this complex area. Attendance is recommended for all trainees and faculty with an interest in managing pathology in this location.

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

- » Develop a better understanding of the surgical anatomy of the petroclival region.
- » Recognize key surgical landmarks and technical nuances for the endonasal and transcranial approach to the petroclival region.
- » Compare the benefits and disadvantages of endonasal and transcranial approaches to the petroclival region.

## 4:00pm-6:05pm **Global Education Day**

Komatke Ballroom

The Global Education Day will provide a comprehensive and worldwide view of different skull base surgical approaches as well as skull base pathologies through the vantage point of our distinguished roster of invited international speakers. The program is geared for neurosurgeons, otolaryngologists and related disciplines involved in the care of these patients around the world. The session will be divided into two components: Surgical Approaches to the Skull Base and Case-based review Skull Base Pathology.

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

- » Recognize the indications and contraindications of open vs. endoscopic approaches to the skull base.
- » Demonstrate the application of key anatomical landmarks for skull base approaches.
- » Develop a step-wise approach for the diagnosis and management of different skull base conditions.

## 5:05pm-6:05pm **Proffered Papers Session 13: Imaging Modalities/Inflammatory Conditions**

Buzzard/Coyote/Eagle

### **095: DOTATATE PET IMAGING IN OLFACTORY NEUROBLASTOMA AND ASSOCIATION WITH SSTR EXPRESSION**

- [Daniel E Palmieri](#)<sup>1</sup>; Kent S Tadokoro, MD<sup>2</sup>; Benita Valappil, MPH<sup>2</sup>; Theja Pakala, MD<sup>3</sup>; Ashok Muthukrishnan, MD<sup>3</sup>; Raja R Seethala, MD<sup>4</sup>; Carl H Snyderman, MD, MBA<sup>2</sup>; <sup>1</sup>University of Pittsburgh School of Medicine; <sup>2</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine; <sup>3</sup>Department of Radiology, University of Pittsburgh School of Medicine; <sup>4</sup>Department of Pathology, University of Pittsburgh School of Medicine

**096: JUGULAR FORAMEN LESIONS: WHAT THE SKULL BASE SURGEON NEEDS TO KNOW** - [Julia M Fisher](#), BA<sup>1</sup>; Ann K Jay, MD<sup>2</sup>; <sup>1</sup>Georgetown University School of Medicine; <sup>2</sup>MedStar Georgetown University Hospital

**097: GLYMPHATIC MRI IS ABLE TO ASSESS INTRAPARENCHYMAL CEREBROSPINAL FLUID FLOW DYNAMICS AFTER SKULL BASE TUMOR RESECTION: A PROOF-OF-CONCEPT STUDY** - [Jacob Bagley](#), MD<sup>1</sup>; Ramon Barajas<sup>1</sup>; Matthew Geltzeiler, MD<sup>1</sup>; Justin Cetas, MD, PhD<sup>2</sup>; <sup>1</sup>OHSU; <sup>2</sup>University of Arizona – Tucson

**098: LATERAL SKULL BASE ABNORMALITIES IN ACHONDROPLASIA: A SURVEY OF PEDIATRIC AND ADULT RADIOGRAPHS WITH CRITICAL INSIGHTS FOR THE SKULL BASE SURGEON** - [Neal M Jackson](#); Tulane University

**099: PREOPERATIVE PREDICTIVE HYPOPHYSITIS SCORING SYSTEM** - [Kyla Wright](#), BS<sup>1</sup>; Matthew Lee, MD<sup>2</sup>; Travis Hill, MD<sup>3</sup>; Hyon Kim, MD<sup>4</sup>; Cordelia Orillac, MD<sup>3</sup>; Nidhi Agrawal, MD<sup>4</sup>; Donato Pacione, MD<sup>3</sup>; <sup>1</sup>NYU Grossman School of Medicine; <sup>2</sup>NYU Langone Medical Center, Department of Radiology; <sup>3</sup>NYU Langone Medical Center, Department of Neurosurgery; <sup>4</sup>NYU Langone Medical Center, Division of Endocrinology, Diabetes and Metabolism



**100: PETROUS CAROTID ARTERY THROMBOSIS IN AN IMMUNOCOMPROMISED PATIENT PRESENTING WITH MASTOIDITIS, A CASE REPORT** - [Mallory G McKeon](#)<sup>1</sup>; Forest Weir, MD<sup>2</sup>; Edward Doyle, MD<sup>2</sup>; Ravi Samy, MD<sup>2</sup>; <sup>1</sup>Vanderbilt School of Medicine; <sup>2</sup>University of Cincinnati Medical Center

**101: THE USEFULNESS OF SLEEP SUBDOMAIN OF SNOT-22 AS A SCREENING TOOL FOR OBSTRUCTIVE SLEEP APNEA IN PATIENTS WITH CHRONIC RHINOSINUSITIS** - Chandala Chitguppi; [Rahul Alapati](#); Fatima Rizvi; Glen DSouza; Sean Parsel; Elina Toskala; Gurston Nyquist; Marc Rosen; Mindy Rabinowitz; Thomas Jefferson University Hospital, Philadelphia

5:05pm-6:05pm

**Proffered Papers Session 14: Craniopharyngioma/New Technologies**

*Pipai Kave I*

**103: FRAILITY IS ASSOCIATED WITH IN-HOSPITAL COMPLICATIONS IN PATIENTS UNDERGOING SURGERY FOR CRANIOPHARYNGIOMA** - Racheal Peterson, MD; Sandeep Kandregula, MCh; Bharat Guthikonda, MD; LSU Health Shreveport, Department of Neurosurgery

**104: THE IMPACT OF FACILITY TYPE AND VOLUME ON OVERALL SURVIVAL IN CRANIOPHARYNGIOMA** - [Benjamin F Bitner](#), MD<sup>1</sup>; Khodayar Goshtasbi, MD, MS<sup>1</sup>; Sina J Torabi, MD<sup>1</sup>; Arash Abiri, BS<sup>1</sup>; Brandon M Lehrich, BS<sup>2</sup>; Michael G Kim, MD<sup>1</sup>; Ahmed Mohyeldin, MD<sup>1</sup>; Frank P Hsu, MD, PhD<sup>1</sup>; Edward C Kuan, MD, MBA<sup>1</sup>; <sup>1</sup>University of California Irvine; <sup>2</sup>University of Pittsburgh and Carnegie Mellon University

**105: EXTENDED APPLICATION OF STIMULATED RAMAN HISTOLOGY IN NOVEL SINONASAL/SKULL BASES PATHOLOGIES** - [Conall W Fitzgerald](#)<sup>1</sup>; Snjezana Dogan<sup>2</sup>; Tim McLean<sup>1</sup>; Robbie Woods<sup>1</sup>; Jennifer Cracchiolo<sup>1</sup>; Viviane Tabar<sup>3</sup>; Marc A Cohen<sup>1</sup>; <sup>1</sup>Head and Neck Service, Department of Surgery, Memorial Sloan Kettering Cancer Center, New York; <sup>2</sup>Department of Pathology, Memorial Sloan Kettering Cancer Center, New York; <sup>3</sup>Department of Neurosurgery, Memorial Sloan Kettering Cancer Center, New York

**106: UNIQUE VOLATILE METABOLITE SIGNATURE OF SINONASAL INVERTED PAPILLOMA DETECTIBLE IN PLASMA AND NASAL SECRETIONS** - [Mark B Chaskes](#), MD, MBA<sup>1</sup>; Young Eun Lee, PhD<sup>2</sup>; Elina Toskala, MD<sup>1</sup>; Gurston Nyquist, MD<sup>1</sup>; Bruce Kimball, PhD<sup>2</sup>; Mindy Rabinowitz, MD<sup>1</sup>; <sup>1</sup>Thomas Jefferson University Hospital; <sup>2</sup>Monell Chemical Senses Center

**107: STREAMING 2D-ENDOSCOPIC VIDEO INTO AN AUGMENTED REALITY HEADSET DISPLAY: A FEASIBILITY STUDY** - [Edward G Andrews](#), MD<sup>1</sup>; Talha Khan, MS<sup>2</sup>; Arka Mallela, MD<sup>1</sup>; Joseph C Maroon, MD<sup>1</sup>; Jacob Biehl, PhD<sup>2</sup>; David Fernandes-Cabral, MD<sup>1</sup>; Zachary C Gersey, MD, MS<sup>1</sup>; Hussam Abou-Al-Shaar, MD<sup>1</sup>; Paul A Gardner, MD<sup>1</sup>; Georgios A Zenonos, MD<sup>1</sup>; <sup>1</sup>University of Pittsburgh Medical Center; <sup>2</sup>University of Pittsburgh School of Computing and Information

**108: IS CRANIOCERVICAL FIXATION THROUGH THE ENDONASAL CORRIDOR POSSIBLE? PROOF OF CONCEPT STUDY OF ANTERIOR OCCIPITAL CONDYLE SCREW PLACEMENT WITH CADAVERIC ANALYSIS** - [Chitra Kumar](#); Daniel McGough, MS; Ahmed Hussein, MD; Dmytro Zhebrykov; Katie Phillips, MD; Ahmad Sedaghat, MD; Charles Prestigiacomo, MD, FAANS, FACS; Justin Virojanapa, DO; Norberto Andaluz, MD; Joseph Cheng, MD, MS; Jonathan Forbes, MD; University of Cincinnati College of Medicine

5:05pm-6:05pm

## Proffered Papers Session 15: Innovative Technologies

Deer/Scorpion

**111: RADIOLOGICAL STUDY OF THE POSTERIOR SEPTUM - NASAL FLOOR MUCOSAL FLAP** - Ahmed A Eltahir; [Andrew J Bowen, MD, MS](#); Natalia Rezende, MD; Leonel Luciano, PhD; Garret M Choby, MD; Maria Peris-Celda, MD, PhD; Carlos D Pinheiro-Neto, MD, PhD; Department of Otolaryngology-Head and Neck Surgery, Mayo Clinic

**112: ENDOSCOPIC ENDONASAL APPROACH FOLLOWED BY GAMMA KNIFE RADIOSURGERY FOR THE MANAGEMENT OF SPHENOCAVERNOUS AND PETROCLIVAL MENINGIOMAS** - [Emade Jaman, BS](#); Hussam Abou-Al-Shaar, MD; Arka N Mallela, MD, MS; Aneek Patel, BS; Eric W Wang, MD; Georgios A Zenonos, MD; Carl H Snyderman, MD; Paul A Gardner, MD; University of Pittsburgh Medical Center

**113: THE MANDIBULAR FOSSA APPROACH** - [Redi Rahmani, MD](#)<sup>1</sup>; Irakli Abramov, MD<sup>2</sup>; Visish M Srinivasan, MD<sup>2</sup>; Lea Scherschinski, MD<sup>2</sup>; Mohamed A Labib, MD<sup>2</sup>; Lena M Houlihan, MD<sup>2</sup>; Joshua S Catapano, MD<sup>2</sup>; Peter Q Quinn, MD, DMD<sup>3</sup>; Michael T Lawton, MD<sup>2</sup>; Mark C Preul, MD<sup>2</sup>; <sup>1</sup>University of Rochester; <sup>2</sup>Barrow Neurological Institute; <sup>3</sup>University of Pennsylvania

**114: THE ROLE OF PERCUTANEOUS CT-GUIDED BIOPSY IN THE MANAGEMENT OF CENTRAL SKULL BASE PATHOLOGY: A CASE SERIES** - Christine Y Mau, MD; Catherine Caldwell, BS; Paul Kalpaos, MD; Krishnamoorthy Thamburaj, MD; [Brad Zacharia, MD, MS](#); Penn State Hershey

**115: IQ DOME: A NOVEL SURGICAL SEALING METHOD FOR SUPERIOR SEMICIRCULAR CANAL DEHISCENCE REPAIR** - [Anjali Pradhan](#)<sup>1</sup>; Mahlet Mekonnen<sup>1</sup>; Ariana Chow<sup>1</sup>; Farinaz Ghodrati, MS<sup>1</sup>; Khashayar Mozaffari<sup>1</sup>; Courtney Duong<sup>1</sup>; Quinton Gopen, MD<sup>2</sup>; Isaac Yang, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery at Ronald Reagan UCLA Medical Center; <sup>2</sup>Department of Head and Neck Surgery at Ronald Reagan UCLA Medical Center

**116: LONG-TERM TRENDS IN SKULL BASE APPROACH UTILIZATION FOR CAVERNOUS MALFORMATION RESECTION** - Diego A Devia, MD<sup>1</sup>; Dimitri Benner, BS<sup>2</sup>; Christopher Graffeo, MD<sup>2</sup>; Lea Scherschinski, MD<sup>2</sup>; George Thomas<sup>3</sup>; Stefan W Koester, MS<sup>4</sup>; Joshua S Catapano, MD<sup>2</sup>; Michael T Lawton, MD<sup>2</sup>; <sup>1</sup>Pontifical Xavierian University - Hospital Universitario San Ignacio; <sup>2</sup>Barrow Neurological Institute; <sup>3</sup>George Washington School Of Medicine and Health Sciences; <sup>4</sup>Vanderbilt University School of Medicine

**117: CONTACT ENDOSCOPY AS A NOVEL TECHNIQUE FOR INTRA-OPERATIVE IDENTIFICATION OF NORMAL PITUITARY GLAND AND ADENOMA** - [Christina Jackson, MD](#); Derek Kong, MD; Zachary C Gersey, MD, MS; Eric Wang, MD; Georgios A Zenonos, MD; Carl H Snyderman, MD; Paul A Gardner, MD; University of Pittsburgh Medical Center

**118: IMPACT OF THREE DIMENSIONAL ENDOSCOPY IN ENDONASAL AND ANTERIOR SKULL BASE SURGERY** - [Ahmed Youssef, MD, PhD, FACS](#)<sup>1</sup>; Amr Kholief, MD<sup>2</sup>; Samy Elwany, MD, PhD, FACS<sup>2</sup>; Shahzada Ahmed, MBBS, FRCS, PhD<sup>3</sup>; <sup>1</sup>OUHSC; <sup>2</sup>Alexandria Medical School; <sup>3</sup>University Hospital Birmingham

5:05pm-6:05pm

## Proffered Papers Session 16: Endonasal Approaches

Bird/Roadrunner

**119: ENDOSCOPIC ENDONASAL RESECTION OF RATHKE'S CLEFT CYSTS: A SINGLE INSTITUTION ANALYSIS OF 113 CONSECUTIVE PATIENT** - [Hanna N Algattas](#); Pradeep Setty; Eric W Wang; Georgios Zenonos; Carl H Snyderman; Paul A Gardner; University of Pittsburgh Medical Center

**120: COMPARATIVE ANALYSIS OF ENDOSCOPE OBSCURATION WITH UTILIZATION OF AN ENDONASAL ACCESS GUIDE (EAG) FOR ENDONASAL SKULL BASE SURGERY** - David Zhou, BS<sup>1</sup>; Michael Avery, MD<sup>2</sup>; Josh Emerson<sup>1</sup>; Walavan Sivakumar, MD<sup>1</sup>; Chester Griffiths, MD<sup>1</sup>; Daniel Kelly, MD<sup>1</sup>; [Garni Barkhoudarian, MD<sup>1</sup>](#); <sup>1</sup>Pacific Neuroscience Institute; <sup>2</sup>University of Arizona, Department of Neurosurgery

**121: RETROSPECTIVE REVIEW OF SURGICAL SITE INFECTIONS AFTER ENDOSCOPIC ENDONASAL APPROACHES FOR PARASELLAR MASSES: A MULTI-CENTER STUDY FROM THE NORTH AMERICAN SKULL BASE SOCIETY.** - [Sara Saleh, MD<sup>1</sup>](#); Stephen Sullivan, MD<sup>1</sup>; Laurence Glancz, MRCS, MBBS, BSc<sup>2</sup>; Adham Khalafallah, MD<sup>3</sup>; Raj Mukherjee, MD, MPH<sup>4</sup>; Nathan Zwagerman, MD<sup>5</sup>; Nithin Adappa, MD<sup>6</sup>; Chris Rassekh, MD<sup>6</sup>; Paul Gardner, MD<sup>7</sup>; Carl Snyderman, MD, MPH<sup>7</sup>; Eric Wang, MD<sup>7</sup>; Melvin Field, MD<sup>8</sup>; Garret Choby, MD<sup>9</sup>; Jamie Van Gompel, MD<sup>9</sup>; Sanjeet Rangarajan, MD, MEng<sup>10</sup>; David W Jang, MD<sup>11</sup>; Christopher Roxbury, MD<sup>12</sup>; Neerav Goyal, MD, MPH<sup>13</sup>; Brad E Zacharia, MD<sup>13</sup>; Meghan N Wilson, MD<sup>13</sup>; Shivan Patel<sup>13</sup>; Emrah Çeltikçi, MD<sup>14</sup>; Glen D'souza, MD<sup>15</sup>; Jim Evans, MD<sup>15</sup>; Gurston G Nyquist, MD<sup>15</sup>; Erin McKean, MD, MBA<sup>1</sup>; <sup>1</sup>University of Michigan; <sup>2</sup>Nottingham University Hospitals, Queen's Medical Centre; <sup>3</sup>Johns Hopkins University, University of Miami; <sup>4</sup>Johns Hopkins University; <sup>5</sup>Medical College of Wisconsin; <sup>6</sup>University of Pennsylvania; <sup>7</sup>University of Pittsburgh; <sup>8</sup>Advent Health; <sup>9</sup>Mayo Clinic; <sup>10</sup>University of Tennessee Health Science Center; <sup>11</sup>Duke University; <sup>12</sup>University of Chicago; <sup>13</sup>Penn State Health; <sup>14</sup>Gazi University Faculty of Medicine; <sup>15</sup>Thomas Jefferson University

**122: DELAYED SYMPTOMATIC HYPONATREMIA IN TRANSPHENOIDAL SURGERY: SYSTEMATIC REVIEW AND META-ANALYSIS OF ITS INCIDENCE AND PREVENTION WITH WATER RESTRICTION** - [Siyuan Yu, BA<sup>1</sup>](#); Mohammad Taghvaei, MD<sup>1</sup>; Maikerly Reyes, BS<sup>1</sup>; Sarah Collupy<sup>1</sup>; Keenan Piper, BA<sup>1</sup>; Michael Karsy, MD, PhD, MSc<sup>1</sup>; John P Gaughan, MS, PhD, MBA<sup>2</sup>; Marc R Rosen<sup>3</sup>; Christopher J Farrell, MD<sup>1</sup>; James J Evans, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Thomas Jefferson University Hospital, Philadelphia, PA; <sup>2</sup>Cooper Research Institute, Cooper University Hospital, Camden, NJ; <sup>3</sup>Department of Otolaryngology, Thomas Jefferson University Hospital, Philadelphia, PA

**123: OUTCOMES OF ENDOSCOPIC ENDONASAL SURGERY FOR SKULL-BASE CHONDROSARCOMA: A SYSTEMATIC REVIEW** - [Prayag Patel<sup>1</sup>](#); Rahul Gulati, MD<sup>2</sup>; Christina Fang, MD<sup>3</sup>; James K Liu, MD<sup>4</sup>; Jordon Grube, DO<sup>5</sup>; Jean Anderson Eloy, MD, FACS, FARS<sup>1</sup>; <sup>1</sup>Department of Otolaryngology - Head and Neck Surgery, Rutgers New Jersey Medical School, Newark, New Jersey, USA; <sup>2</sup>Department of Otolaryngology - Head and Neck Surgery, State University of New York (SUNY) Downstate Medical Center, Brooklyn, NY; <sup>3</sup>Montefiore Medical Center, The University Hospital of Albert Einstein College of Medicine; <sup>4</sup>Department of Neurological Surgery, Rutgers New Jersey Medical School, Newark, New Jersey, USA; <sup>5</sup>Division of Otolaryngology/ Head and Neck Surgery, Department of Surgery, Albany Medical Center, Albany, NY, USA

**124: THE SUPERIOR NASAL SEPTUM ARTERIAL PATTERN: AN ANATOMICAL STUDY OF THE S-POINT AREA** - Natalia Rezende<sup>1</sup>; [Luciano Leonel](#)<sup>1</sup>; Eduardo Macoto Kosugi<sup>2</sup>; Carlos D Pinheiro-Neto<sup>3</sup>; Maria Peris-Celda<sup>1</sup>; <sup>1</sup>Department of Neurologic Surgery, Mayo Clinic, Rochester, MN - USA; <sup>2</sup>Department of Otorhinolaryngology and Head and Neck Surgery, Federal University of Sao Paulo (UNIFESP-EPM), Sao Paulo, SP, Brazil; <sup>3</sup>Division of Rhinology and Skull Base Surgery, Department of Otolaryngology - Head & Neck Surgery, Mayo Clinic, Rochester, MN – USA

**125: IMPACT OF SALVAGE SURGERY FOR RECURRENT SINONASAL CANCERS WITH SKULL BASE AND INTRACRANIAL INVOLVEMENT** - [Solon Schur](#), MDCM, MSc; Shirley Y Su, MBBS; Michael E Kupferman, MD; Ehab Y Hanna, MD; Franco DeMonte, MD; Shaan M Raza, MD; MD Anderson Cancer Center

**126: ENDOSCOPIC ENDONASAL RESECTION OF GH SECRETING PITUITARY ADENOMA, WITH RESECTION OF MEDIAL WALL OF CAVERNOUS SINUS, AND SIMULTANEOUS CLIPPING OF EMBEDDED SUPERIOR HYPOPHYSEAL ARTERY ANEURYSM** - [Hanna N Algattas](#), MD; Uma Ramaswamy, MD; Carl H Snyderman, MD; Paul A Gardner, MD; Eric W Wang; Georgios A Zenonos, MD; University of Pittsburgh Medical Center

**6:30pm-7:30pm** **New Member Reception - Invitation Only**

**7:30pm-10:00pm** **Main Social Event**

*Equestrian Center*

Sunday, February 20, 2022

Time (Mountain Time Zone)	Session	Location
7:30am-8:30am	<p><b><u>Special Session 4: New Technology and Techniques in Skull Base Surgery</u></b></p> <p>This session will focus on technological advances that help in the presurgical planning process and technology/techniques used intraoperatively that help result in both more extensive yet safe surgery. This session is primarily focused for skull base surgeons.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Understand how 3-D printing is implemented into the preoperative planning process in skull base surgery.</li> <li>» Appreciate how intraoperative visualization and histopathological techniques are used in skull base surgery and how to implement them.</li> <li>» Assess the role of robotics in skull base surgery.</li> <li>» Identify how to minimize exposure to surgical team during skull base surgeries during the COVID-19 pandemic.</li> </ul>	Buzzard/Coyote/Eagle
7:30am-8:30am	<p><b><u>Special Session 5: Challenge of MRI Negative Cushing's Disease</u></b></p> <p>This session will focus on diagnostic challenges prior to surgery, intraoperative surgical strategies for MRI-negative Cushing's Disease, and treatment strategies for patients who fail to achieve remission. It is mainly focused for neurosurgeons, endocrinologists, and radiologists who care for patients with Cushing's disease.</p> <p>At the conclusion of this session, attendees will be able to:</p> <ul style="list-style-type: none"> <li>» Distinguish the appropriate diagnostic thought process both prior and after a negative MRI scan of the pituitary gland.</li> <li>» Recognize high-yield imaging strategies to identify pituitary tumors when ACTH-dependent hypercortisolism is diagnosed.</li> <li>» Identify the different surgical strategies employed for MRI-negative Cushing's disease and understand their respective advantages/disadvantages.</li> <li>» Recognize the role of radiosurgery and systemic medical options for patients that fail to achieve remission or have recurrence of Cushing's disease.</li> </ul>	Pipai Kave I

**7:30am-8:30am**    **Special Session 6: Neuromonitoring in Vestibular Schwannoma Surgery**

*Deer/Scorpion*

Neuromonitoring is essential to optimize outcomes in vestibular schwannoma surgery. In this session, standard techniques will be reviewed as well as cutting-edge advances that are focused on facial nerve and hearing preservation and how to implement them into practice. This session is primarily for neurosurgeons and neuro-otologists, but the perspective can also be helpful for reconstructive surgeons and audiologists.

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

- » Recognize the different neurophysiological monitoring techniques and the role they play in vestibular schwannoma surgery.
- » Strategize how to optimize neurophysiological monitoring strategies so they translate into better patient outcomes.
- » Discriminate the differences that exist in operative goals in NF-2 related vestibular schwannomas and how to adjust neurophysiological monitoring techniques.

**7:30am-8:30am**    **Proffered Papers Session 17: Intraoperative Adjuncts/Medical Management/Miscellaneous**

*Jackrabbit*

**127: A TEACHING ATLAS OF THE ULTRASOUND ANATOMY OF THE SKULL BASE: IMPLICATIONS FOR FUTURE APPLICATIONS OF INTRAOPERATIVE ULTRASOUND IN ENDOSCOPIC ENDONASAL SKULL BASE SURGERY** - [Christina E Sarris, MD](#); [Griffin Santarelli, MD](#); [Kaith Almefty, MD](#); [Andrew S Little, MD](#); Barrow Neurological Institute

**128: UTILITY OF INTRA-OPERATIVE MRI ASSESSING NASOSEPTAL FLAP VASCULARITY IN PREDICTING POST-OPERATIVE CSF LEAK AFTER ENDOSCOPIC ENDONASAL APPROACHES TO ANTERIOR SKULL BASE LESIONS** - [Christopher Hong](#); [R. Peter Manes](#); [Eugenia M Vining](#); [Sagit Bulent Omay](#); Yale University

**129: STANDARDIZATION OF EMBOLIZATION TECHNIQUE FOR JUVENILE NASOPHARYNGEAL ANGIOFIBROMA** - [Anisha Konanur, BS](#)<sup>1</sup>; [Bradley A Gross, MD](#)<sup>2</sup>; [Carl H Snyderman, MD, MBA](#)<sup>3</sup>; <sup>1</sup>University of Pittsburgh School of Medicine; <sup>2</sup>University of Pittsburgh Department of Neurosurgery; <sup>3</sup>University of Pittsburgh Department of Otolaryngology

**130: ENDOSCOPIC ENDONASAL MANAGEMENT OF PEDIATRIC CONGENITAL TRANSSPHEOIDAL ENCEPHALOCELE: A CASE REPORT** - [Abdulrahman Albakr, MD](#); [Jay Riva-Cambrin, MD, MSc, FRCSC](#); [Jessica M Clark, MD, MSc, FRCSC](#); [Yves P Starreveld, MD, PhD, FRCSC](#); University of Calgary



**131: ADENOID CYSTIC CARCINOMA INFILTRATING THE SKULL BASE: A SYSTEMATIC REVIEW** - Othman Bin Alamer, MBBS<sup>1</sup>; Ali S Haider, BS<sup>2</sup>; Adhiraj Chaudhary<sup>3</sup>; Kishore Balasubramanian, MS<sup>2</sup>; Tessa Breeding, BS<sup>4</sup>; Paolo Palmisciano, MD<sup>5</sup>; Maryam Haider, MD<sup>6</sup>; Aaron A Cohen-Gadol, MD, MSc, MBA<sup>7</sup>; Tarek Y El Ahmadieh, MD<sup>1</sup>; Kenny Yu, MBBS, PhD, FRCS<sup>8</sup>; <sup>1</sup>College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia; <sup>2</sup>Texas A&M University College of Medicine, Houston, TX; <sup>3</sup>Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi, India; <sup>4</sup>Dr. Kiran C. Patel College of Allopathic Medicine, Nova Southeastern University, Fort Lauderdale, FL; <sup>5</sup>Department of Neurosurgery, Trauma Center, Gamma Knife Center, Cannizzaro Hospital, Catania, Italy; <sup>6</sup>Department of Radiology, Baylor College of Medicine, Houston, TX; <sup>7</sup>Department of Neurological Surgery, Indiana University School of Medicine, Indianapolis, IN; <sup>8</sup>Department of Neurosurgery, Memorial Sloan Kettering Cancer Center, New York, NY

**132: UTILIZATION OF INTRA-OPERATIVE CONTINUOUS FLASH VISUAL EVOKED POTENTIALS IN ENDOSCOPIC SKULL BASE SURGERY** - Rafael Ochoa-Sanchez, PhD<sup>1</sup>; Mazen Alotaibi<sup>2</sup>; Shaun Kilty, MD<sup>1</sup>; Charles Agbi, MD<sup>2</sup>; Lamothe Andre, MD<sup>3</sup>; David Schramm<sup>1</sup>; Fahad Alkherayf, MD, MSc<sup>2</sup>; <sup>1</sup>The Ottawa Hospital Research Institute, Ottawa, Canada; <sup>2</sup>Division of Neurosurgery, Department of Surgery, The Ottawa Hospital, Ottawa, Canada; <sup>3</sup>Department of Otolaryngology- Head & Neck Surgery, The Ottawa Hospital, Ottawa, Canada

**133: MINIMALLY INVASIVE REPAIR OF CRIBRIFORM PLATE ENCEPHALOCELES UTILIZING A VASCULARIZED FLAP AND A MIDDLE TURBINATE-SPARING TECHNIQUE: PRELIMINARY OUTCOMES FROM A SINGLE INSTITUTIONAL COHORT** - Danielle D Dang, MD<sup>1</sup>; Luke Mugge, MD<sup>1</sup>; Nilesh Vyas, MD<sup>1</sup>; Ameet Singh, MD<sup>2</sup>; <sup>1</sup>Inova Fairfax Medical Campus; <sup>2</sup>George Washington University

**134: OUTPATIENT SKULL BASE/BRAIN TUMOR CLINIC VISIT NO-SHOW PREDICTION** - Patrick D Kelly; Allison B McCoy, PhD; Robert J Dambrino, MD; Lola B Chambless; Peter J Morone, MD, MSCI; Reid C Thompson, MD; Vanderbilt University Medical Center

7:30am-8:30am

**Proffered Papers Session 18: Lateral Skull Base Surgery**

Komatke Ballroom

**135: MASTOID EMISSARY VEIN OCCLUSION FOR THE TREATMENT OF LATERALIZED, FRONTOTEMPORAL HEADACHES: A RETROSPECTIVE CASE SERIES** - Patrick W Slater, MD; Bailey H Duhon; Austin Ear Clinic

**136: CLINICAL OUTCOMES OF ACOUSTIC NEUROMA PATIENTS UNDERGOING MICROSURGICAL RESECTION FOLLOWING RADIATION THERAPY** - Omid Moshtaghi, MD, MS<sup>1</sup>; Yin Ren, MD, PhD<sup>2</sup>; Peter R Dixon, MD, MSc<sup>1</sup>; Alexander Claussen, MD<sup>1</sup>; Jimmy Yu, BS<sup>1</sup>; Usman Khan, MD<sup>1</sup>; Jillian Plonsker, MD<sup>1</sup>; Michael Brandel, MD<sup>1</sup>; Marc S Schwartz, MD<sup>1</sup>; Rick A Friedman, MD, PhD<sup>1</sup>; <sup>1</sup>University of California, San Diego; <sup>2</sup>Ohio State University

**137: INERTIAL COST AND PRODUCTIVITY ANALYSIS FOR IMPLEMENTING A SEMI-AUTOMATED LATERAL SKULL BASE RESEARCH PLATFORM** - Malika Bhargava, MD, MBA; Shawn M Stevens, MD; Komal Naeem, MD; Chris Graffeo, MD; Dimitri Benner, BS; Kaith Almefty, MD; Kris Smith, MD; Michael Lawton, MD; Randall W Porter, MD; Barrow Neurological Institute

**138: PREDICTORS OF PERMANENT CEREBROSPINAL FLUID DIVERSION AFTER CRANIOTOMY FOR VESTIBULAR SCHWANNOMA** - [David P Bray, MD<sup>1</sup>](#); Hassan Saad, MD<sup>1</sup>; J M Douglas, BS<sup>1</sup>; Dayton Grogan<sup>2</sup>; Reem Dawoud, BS<sup>1</sup>; J. Manuel Revuelta-Barbero, MD, PhD<sup>1</sup>; Jocelyn Chow<sup>3</sup>; Gustavo Pradilla, MD<sup>1</sup>; Jeffrey J Olson, MD<sup>1</sup>; Kimberly B Hoang, MD<sup>1</sup>; Ali M Alawieh, MD, PhD<sup>1</sup>; <sup>1</sup>Emory University School of Medicine; <sup>2</sup>Augusta University; <sup>3</sup>University of Georgia

**139: EMBOLIZATION OF GIANT POSTERIOR FOSSA HEMANGIOBLASTOMAS: THE EXPERIENCE OF A SINGLE TERTIARY CARE CENTER** - [Megan J Bauman, MS](#); Samantha M Bouchal, BS; Panagiotis Kerezoudis, MD, MS; Michael J Link, MD; Maria Peris Celda, MD, PhD; Harry Cloft, MD, PhD; Giuseppe Lanzino, MD; Waleed Brinjikji, MD; Ian F Parney, MD, PhD; Mayo Clinic

**140: OUTCOMES OF EXTENDED MIDDLE FOSSA APPROACH FOR PETROCLIVAL TUMORS IN THE ELDERLY** - [Vivian Kaul, MD](#); Michah K Harris, BS; Thomas Gao, BS; Daniel M Prevedello, MD; Oliver F Adunka; Yin Ren, MD, PhD; The Ohio State University Wexner Medical Center

**141: INTERFASCIAL-SUBPERICRANIAL DISSECTION TECHNIQUE IN PTERIONAL CRANIOTOMY: A PROSPECTIVE REVIEW** - [Basim Noor Elahi, MD](#); Aysha Hawsawi; Ashwaq Alqurashi; Abdulrazzag Ajlan; King Saud University Medical City

**142: NF2 MUTANT SPORADIC MENINGIOMAS DIFFER BASED ON LOCATION RELATIVE TO THE TENTORIUM** - Sagar Vasandani<sup>1</sup>; Shaurey Vetsa<sup>1</sup>; Muhammad Jalal<sup>1</sup>; Yalcin Kanat<sup>1</sup>; Neelan Marianayagam<sup>1</sup>; Lan Jin<sup>1</sup>; Robert K Fulbright<sup>2</sup>; E. Zeynep Erson-Omay<sup>1</sup>; Murat Gunel<sup>1</sup>; [Jennifer Moliterno<sup>1</sup>](#); <sup>1</sup>Department of Neurosurgery, Yale School of Medicine, New Haven, CT, USA; <sup>2</sup>Department of Radiology and Biomedical Imaging, Neuroradiology Section, Yale School of Medicine, New Haven, CT, USA

7:30am-8:30am

**Proffered Papers Session 19: Clival Tumors/Complications**

Jackrabbit

**143: RETROSPECTIVE ANALYSIS OF TREATMENT STRATEGIES AND RISK FACTORS FOR DISEASE PROGRESSION IN SKULL BASE CHORDOMA AND CHONDROSARCOMA** - [Tabarak M Mian, BS](#); William H Hicks, BS; Mark N Pernik, BA; Jeffrey I Traylor, MD; Sam Barnett, MD; Tomas Garzon-Muvdi, MD; University of Texas Southwestern Medical Center

**145: RISK FACTORS FOR POSTOPERATIVE INTRACRANIAL INFECTIONS DURING ENDOSCOPIC ENDONASAL SKULL BASE SURGERY IN A PEDIATRIC POPULATION AND THE ROLE OF ANTIBIOTIC PROPHYLAXIS** - [Daniel E Palmieri, BA<sup>1</sup>](#); Pierre-Olivier Champagne, MD<sup>2</sup>; Benita Valappil, MPH<sup>3</sup>; Paul A Gardner, MD<sup>2</sup>; Carl H Snyderman, MD, MBA<sup>3</sup>; <sup>1</sup>University of Pittsburgh School of Medicine; <sup>2</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine; <sup>3</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine

**146: EARLY COMPLICATIONS, READMISSIONS, REOPERATIONS, AND MORTALITIES FOLLOWING SKULL BASE SURGERY** - [Khodayar Goshtasbi, MD, MS<sup>1</sup>](#); Sina J Torabi, MD<sup>1</sup>; Arash Abiri, BS<sup>1</sup>; Brandon M Lehrich, BS<sup>2</sup>; Harrison W Lin, MD<sup>1</sup>; Ahmed Mohyeldin, MD<sup>1</sup>; Frank Hsu<sup>1</sup>; Hamid R Djalilian, MD<sup>1</sup>; Edward C Kuan, MD, MBA<sup>1</sup>; <sup>1</sup>UC Irvine; <sup>2</sup>University of Pittsburgh

**148: MANAGEMENT OF EXTERNAL AUDITORY CANAL INJURY ASSOCIATED WITH MIDDLE FOSSA CRANIOTOMY** - [Jacob Kahane, MD](#); Moises Arriaga, MD; LSU Health Sciences Center

**150: RISK FACTORS ASSOCIATED WITH POSTOPERATIVE CSF LEAK IN NONSELLAR TUMORS** - [Huan Zhang](#); Sophie Peeters; Gennadiy Vengerovich; Layal Antoury; Ki Wan Park; Jeffrey Suh; Jivianne Lee; Anthony Heaney; Marvin Bergsneider; Won Kim; Marilene Wang; UCLA

**7:30am-9:00am**

## **Early Career Skull Base Surgeon Workshop**

*Bird/Roadrunner*

This session is intended to help with skills and important resources needed to establish a skull base lab and build a skull base practice.

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

- » Gain an appreciation on how to establish resources needed to set up and run a skull base lab.
- » Gain an understanding of the elements that are necessary for building a focused skull base practice.
- » Open forum discussion on areas of need for the Early Career Skull Base Surgeon.

**7:30am-9:30am**

## **RHOTON ROOM: Dueling Dissections - Endonasal vs Transcranial - Session 4: Lower Clivus and Foramen Magnum**

*Pipai Kave II & III*

Endoscopic endonasal and transcranial approaches are competing but also complementary approaches to the skull base. In this session we will review the 3D surgical anatomy of the Lower Clivus and Foramen Magnum regions, and we will discuss the pros and cons of endonasal and transcranial approaches to these regions. Attendance is recommended for all trainees and faculty with an interest in managing pathology in these locations.

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

- » Develop a better understanding of the surgical anatomy of the Lower Clivus and Foramen Magnum.
- » Recognize key surgical landmarks and technical nuances for the endonasal and transcranial approach to the Lower Clivus and Foramen Magnum.
- » Compare the benefits and disadvantages of endonasal and transcranial approaches to the Lower Clivus and Foramen Magnum.

8:35am-9:35am

## **Proffered Papers Session 20: Meningiomas**

*Buzzard/Coyote/  
Eagle*

**151: MOLECULAR ANALYSIS OF GRADE 2 MENINGIOMAS: ARE THEY A SEPARATE ENTITY?** - Abigail Funari, BS; Kith Pradhan; Amit Verma, MD; Vijay Agarwal, MD; Albert Einstein College of Medicine

**152: MOLECULAR AND CLINICAL CHARACTERIZATION OF RADIATION-INDUCED MENINGIOMAS** - Eduardo A Maury, BS<sup>1,2</sup>; Varun Bhave, BA<sup>1</sup>; Joseph Driver, MD<sup>1</sup>; Samuel Emerson, MD, PhD<sup>1</sup>; Adrian Dubuc, PhD<sup>3</sup>; David Meredith, MD, PhD<sup>3</sup>; Azra H Ligon, PhD<sup>3</sup>; Sandro Santagata, MD, PhD<sup>3</sup>; Wenya Linda Bi, MD, PhD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Brigham and Women's Hospital, Harvard Medical School, Boston, MA; <sup>2</sup>Bioinformatics & Integrative Genomics Program and Harvard/MIT MD-PhD Program, Harvard Medical School, Boston, MA, USA; <sup>3</sup>Department of Pathology, Brigham and Women's Hospital, Harvard Medical School, Boston, MA

**153: ANY RHYTHM TO THE RECURRENCE? A PATTERN OF RECURRENCE ANALYSIS IN SURGICALLY RESECTED WHO II INTRACRANIAL MENINGIOMAS.** - Derrick Obiri - Yeboah, BS<sup>1</sup>; Pranay Soni, MD<sup>2</sup>; João Paulo Cavalcante de Almeida, MD<sup>2</sup>; Precious Oyem, BA<sup>1</sup>; Pablo F Recinos, MD<sup>2</sup>; Varun R Kshetty, MD<sup>2</sup>; <sup>1</sup>Cleveland Clinic Lerner College of Medicine of Case Western Reserve University, Cleveland, OH, USA; <sup>2</sup>Department of Neurosurgery, Neurological Institute, Cleveland Clinic, Cleveland, OH, USA

**154: VARIABILITY IN VASCULAR SUPPLY OF INTRACRANIAL MENINGIOMAS: AN ANGIOGRAPHIC AND ANATOMIC STUDY** - Abdul-Kareem Ahmed; Bradley Wilhelmy; Mohamed A Labib; Dheeraj Gandhi; Howard M Eisenberg; Graeme F Woodworth; University of Maryland School of Medicine

**155: HIGH-THROUGHPUT SCREENING OF EPIGENETIC INHIBITORS IN MENINGIOMAS IDENTIFIES SENSITIVITIES TOWARDS HDAC, G9A, AND JUMONJI DOMAIN INHIBITION.** - Philip Tatman<sup>1</sup>; Tadeusz Wroblewski<sup>1</sup>; Anthony Fringurello<sup>1</sup>; Sam Scherer<sup>1</sup>; William Foreman<sup>1</sup>; Denise Damek, MD<sup>2</sup>; Samy Youssef, MD, PhD<sup>1</sup>; Randy Jensen, MD, PhD<sup>3</sup>; Kevin Lillehei, MD<sup>1</sup>; Ryan Ormond, MD, PhD<sup>1</sup>; Michael Graner, PhD<sup>1</sup>; <sup>1</sup>University of Colorado, Department of Neurosurgery; <sup>2</sup>University of Colorado, Department of Neuro-oncology; <sup>3</sup>University of Utah, Department of Neurosurgery

**157: THIRTY-DAY READMISSIONS AND SEIZURE-RISK AFTER SURGICAL RESECTION OF INTRACRANIAL MENINGIOMAS: ANALYSIS OF A NATIONAL DATABASE** - Anthony O Asemota, MD, MPH; Lei (Helen) Huang, MD; Warren Boling, MD; Loma Linda University Medical Center

8:35am-9:35am

## **Proffered Papers Session 21: Endonasal Approaches/Head and Neck**

*Pipai Kave I*

**159: ENDONASAL SURGERY CAROTID ARTERY INJURY TIMEOUT CHECKLIST - IMPLEMENTATION AND CASE EXAMPLE** - Garni Barkhoudarian<sup>1</sup>; Seshaan Ratnam<sup>1</sup>; Regin Mallari<sup>1</sup>; Jai Thakur<sup>2</sup>; Walavan Sivakumar<sup>1</sup>; Chester Griffiths<sup>1</sup>; Daniel F Kelly<sup>1</sup>; <sup>1</sup>Pacific Neuroscience Institute; <sup>2</sup>University of Southern Alabama

**161: INTRAOPERATIVE XORAN X-CAT® MOBILE CT SCAN: NOVEL EXPERIENCE IN ENDOSCOPIC ENDONASAL SKULL BASE SURGERY** - [Chester F Griffiths, MD](#); Garni Barkhoudarian, MD; Daniel Kelly, MD; Justin Garling, MD; Michael Avery; Amy Eisenberg; Olivia Doyle; Natasha Cueto; Pacific Neuroscience Institute

**162: HEALTH INSURANCE COVERAGE AND SURVIVAL OUTCOMES AMONG NASOPHARYNGEAL CARCINOMA PATIENTS: A SEER RETROSPECTIVE ANALYSIS** - [Ashley Diaz, BS](#)<sup>1</sup>; Daniel Bujnowski, BS<sup>2</sup>; Haobin Chen, BS<sup>3</sup>; Keaton Pendergrast, BS<sup>4</sup>; Peleg Horowitz, MD, PhD<sup>5</sup>; Paramita Das, MD, MS<sup>5</sup>; Christopher Roxbury, MD<sup>5</sup>; <sup>1</sup>University of Chicago Pritzker School of Medicine; <sup>2</sup>Loyola University Stritch School of Medicine; <sup>3</sup>Geisel School of Medicine at Dartmouth College; <sup>4</sup>University of Minnesota Medical School; <sup>5</sup>University of Chicago Medicine

**163: SINONASAL NUT CARCINOMA: A CONSECUTIVE CASE SERIES** - [Nasim Shakibai, DO, MS](#); Kevin J Contrera, MD, MPH; Dianna B Roberts, PhD; Michael E Kupferman, MD; Shirley Y Su, MD; Diana Bell, MD; Michelle Williams, MD; Franco DeMonte, MD; Shaan M Raza, MD; Renata Ferrarotto, MD; Bonnie S Glisson, MD; Jack Phan, MD, PhD; G Brandon Gunn, MD; Ehab Y Hanna, MD; MD Anderson Cancer Center

**164: TREATMENT OUTCOMES OF RADIATION THERAPY OF PARANGLIOMAS OF THE HEAD AND NECK AT A SINGLE INSTITUTION** - [Aleena A Abbasi](#); Robert A Lustig, MD; Jay F Dorsey, MD, PhD; John Y K Lee, MD; Sean M Grady, MD; Goldie A Kurtz, MD; Jacob E Shabason, MD; Douglas C Bigelow, MD; Jason A Brant, MD; Michael J Ruckenstein, MD; Michelle Alonso-Basanta, MD, PhD; University of Pennsylvania

**165: NASOSEPTAL FLAP ENHANCEMENT ON IMMEDIATE POST-OPERATIVE MR IMAGING DOES NOT PREDICT THREE-MONTH IMAGING RATES NOR POST-OPERATIVE CSF LEAK RISK.** - [Artak Mukhaelian](#)<sup>1</sup>; [Xiaowen A Wang](#)<sup>2</sup>; [Regin Mallari](#)<sup>3</sup>; [Walavan Sivakumar](#)<sup>3</sup>; [Daniel F Kelly](#)<sup>3</sup>; [Chester Griffiths](#)<sup>3</sup>; [Garni Barkhoudarian](#)<sup>3</sup>; <sup>1</sup>Yerevan State Medical University; <sup>2</sup>Fudan University; <sup>3</sup>Pacific Neuroscience Institute

**166: CIC-DUX4 SARCOMA INVOLVING THE SKULL BASE: A RARE PRESENTATION AND REVIEW OF THE LITERATURE** - [Sara B Hobday, BA](#)<sup>1</sup>; [Leila J Mady, MD, PhD, MPH](#)<sup>1</sup>; [Alec M Jacobson, MD](#)<sup>2</sup>; [S Ali Nabavizadeh, MD](#)<sup>3</sup>; [Christopher H Rassekh, MD](#)<sup>1</sup>; <sup>1</sup>University of Pennsylvania Department of Otorhinolaryngology; <sup>2</sup>University of Pennsylvania Department of Pathology and Laboratory Medicine; <sup>3</sup>University of Pennsylvania Department of Radiology

8:35am-9:35am

**Proffered Papers Session 22: Pituitary**
*Deer/Scorpion*

**167: POST-OPERATIVE CARE PATHWAY TO REDUCE READMISSIONS FOLLOWING ENDOSCOPIC PITUITARY SURGERY** - [Michael Ghiam, MD](#)<sup>1</sup>; [Ibrahim Ali](#)<sup>1</sup>; [Cortney Dable](#)<sup>1</sup>; [Atil Kargi, MD](#)<sup>2</sup>; [Ricardo Komotar, MD](#)<sup>3</sup>; [Corinna Levine, MD, MPH](#)<sup>1</sup>; [Zoukaa Sargi, MD, MPH](#)<sup>1</sup>; <sup>1</sup>University of Miami Department of Otolaryngology; <sup>2</sup>University of Miami Miller School of Medicine, Division of Endocrinology, Diabetes and Metabolism, Department of Medicine; <sup>3</sup>University of Miami Miller School of Medicine, Department of Neurological Surgery

**168: DRIVERS OF COMPLICATIONS AND OUTCOMES IN PATIENTS WITH PITUITARY ADENOMAS AND SUPRASELLAR TUMOR EXTENSION** - [Timothy G White, MD](#); Marianne Ruelle; Danielle Golub, MD; Jung Park, MD, PhD; Kaiyun Yang; Mark Eisenberg; Amir Dehdashti; Hofstra Northwell

**169: MRI-NEGATIVE CUSHING'S DISEASE: A SYSTEMATIC REVIEW AND META-ANALYSIS** - Mohammadmahdi Sabahi, MD, MPH<sup>1</sup>; Taha Shahbazi, MD, MPH<sup>1</sup>; Seyed Farzad Maroufi, MD, MPH<sup>2</sup>; Kevin Vidal, MS<sup>3</sup>; Pablo Recinos, MD<sup>4</sup>; Varun Kshettry, MD<sup>5</sup>; Florian Roser, MD<sup>6</sup>; Badih Adada, MD<sup>3</sup>; [Hamid Borghei-Razavi, MD<sup>3</sup>](#); <sup>1</sup>Neurosurgery Research Group (NRG), Student Research Committee, Hamadan University of Medical Sciences; <sup>2</sup>Sina Trauma and Surgery Research Center, Tehran University of Medical Sciences; <sup>3</sup>Department of Neurological Surgery, Pauline Braathen Neurological Center, Cleveland Clinic Florida, Weston, Florida; <sup>4</sup>Department of Neurological Surgery and Rosa Ella Burkhardt Brain Tumor and Neuro-Oncology Center, Cleveland Clinic, Cleveland, Ohio; <sup>5</sup>Department of Otolaryngology, Head & Neck Institute, Cleveland Clinic, Cleveland, Ohio; <sup>6</sup>Department of Neurosurgery, Cleveland Clinic, Abu Dhabi

**170: COMPARISON OF SURGICAL MODALITIES FOR GIANT PITUITARY ADENOMA RESECTION: AN UPDATED SYSTEMATIC REVIEW** - [Oliver Y Tang, BS<sup>1</sup>](#); Wayne D Hsueh, MD<sup>2</sup>; Jean A Eloy, MD<sup>2</sup>; James K Liu, MD<sup>2</sup>; <sup>1</sup>Warren Alpert Medical School of Brown University; <sup>2</sup>New Jersey Medical School

**171: SURGICAL OUTCOMES OF MEDICALLY FAILED PROLACTINOMAS: A SYSTEMATIC REVIEW AND META-ANALYSIS** - Karan J Yagnik, MBBS; Dana Erickson, MD; Irina Bancos, MD; John Atkinson, MD; Garret Choby, MD; Maria Peris-Celda, MD, PhD; [Jamie J Van Gompel, MD](#); Mayo Clinic

**172: PREDICTIVE FACTORS FOR SURGICAL INTERVENTION IN PROLACTINOMAS** - [Andrius Anuzis](#); Kevin O Lillehei; University of Colorado Anschutz Medical Campus

**173: THE IMPACT OF REDUCING UNPLANNED READMISSIONS FOLLOWING ELECTIVE PITUITARY SURGERY ON HOSPITAL FINANCIAL PERFORMANCE IN A FEE-FOR-SERVICE PAYER ENVIRONMENT: EXPERIENCE OF A UNITED STATES PITUITARY CENTER** - [Christina Sarris, MD](#); Scott Brigeman, MD; Andrew S Little, MD; Barrow Neurological Institute

**174: PITUITARY ADENOMAS AS A BAROMETER OF HEALTHCARE ACCESS** - [Nathan J Wallace, BS<sup>1</sup>](#); William Jackson Palmer, BA, MS<sup>1</sup>; Anand K Devaiah, MD, FACS<sup>2</sup>; <sup>1</sup>Boston University School of Medicine; <sup>2</sup>Boston Medical Center - Otolaryngology: Head and Neck Surgery

8:35am-9:35am

**Proffered Papers Session 23: Oncologic Outcomes/Orbital Tumors/Miscellaneous**

Komatke Ballroom

**176: OUTCOMES OF RADICAL RESECTION OF ADVANCED PAROTID MALIGNANCIES WITH TEMPORAL BONE RESECTION: PRELIMINARY REPORT** - [Roberto M Soriano, MD<sup>1</sup>](#); Juan M Revuelta, MD, PhD<sup>2</sup>; Rima S Rindler, MD<sup>3</sup>; Gustavo Pradilla, MD<sup>2</sup>; C. Arturo Solares, MD<sup>1</sup>; <sup>1</sup>Emory University School of Medicine, Department of Otolaryngology-Head and Neck Surgery; <sup>2</sup>Emory University School of Medicine, Department of Neurosurgery; <sup>3</sup>Mayo Clinic, Department of Neurosurgery



**177: PATIENT, DISEASE AND TREATMENT RELATED FACTORS AFFECTING PROGRESSION-FREE AND DISEASE-SPECIFIC SURVIVAL IN RECURRENT CHONDROSARCOMAS OF THE SKULL BASE** - Rita Snyder, MD<sup>1</sup>; Ron Gadot, BS<sup>1</sup>; Paul Gidley, MD<sup>2</sup>; Marc-Elie Nader, MD<sup>2</sup>; Ehab Hanna, MD<sup>2</sup>; Shirley Su, MD<sup>2</sup>; Franco DeMonte, MD<sup>2</sup>; Shaan Raza, MD<sup>2</sup>; <sup>1</sup>Baylor College of Medicine; <sup>2</sup>MD Anderson Cancer Center

**178: SINONASAL CHONDROSARCOMA: AN ANALYSIS OF THE NATIONAL CANCER DATABASE** - Rijul S Kshirsagar, MD; Jacob G Eide, MD; James N Palmer, MD; Nithin D Adappa; University of Pennsylvania

**179: CUTANEOUS MALIGNANT MELANOMA MIMICKING MALIGNANT PERIPHERAL NERVE SHEATH TUMOR (MPNST) IN MECKEL'S CAVE: UTILITY OF NEXT-GENERATION DNA SEQUENCING FOR DIAGNOSIS** - Danielle Dang, MD<sup>1</sup>; Olivia Gilbert, BS, BFA<sup>2</sup>; Mahtab Tehrani, MD<sup>1</sup>; Niles Vyas, MD<sup>1</sup>; <sup>1</sup>Inova Fairfax Medical Campus; <sup>2</sup>LSU Health Sciences Center

**180: ORBITAL METASTASES: A SYSTEMATIC REVIEW OF CLINICAL CHARACTERISTICS, MANAGEMENT STRATEGIES, AND SURVIVAL OUTCOMES** - Paolo Palmisciano, MD<sup>1</sup>; Ali S Haider, BS<sup>2</sup>; Christian Ogasawara, BS<sup>3</sup>; Waseem Wahood, MSc<sup>4</sup>; Othman Bin Alamer, MBBS<sup>5</sup>; Aditya D Gupta, BS<sup>2</sup>; Gianluca Scalia, MD<sup>6</sup>; Giuseppe E Umana, MD, MSc<sup>1</sup>; Aaron A Cohen-Gadol, MD, MSc, MBA<sup>7</sup>; Tarek Y El Ahmadieh, MD<sup>8</sup>; Omar Pathmanaban, MBBS, PhD<sup>9</sup>; Kenny Yu, MBBS, PhD<sup>8</sup>; <sup>1</sup>Department of Neurosurgery, Cannizzaro Hospital, Catania, Italy; <sup>2</sup>Texas A&M University College of Medicine; <sup>3</sup>John A. Burns School of Medicine, University of Hawai'i, Honolulu, HI; <sup>4</sup>Dr. Kiran C. Patel College of Allopathic Medicine, Nova Southeastern University, Davie, FL; <sup>5</sup>King Abdullah International Medical Research Center, Riyadh, Saudi Arabia; <sup>6</sup>Department of Neurosurgery, Highly Specialized Hospital and of National Importance "Garibaldi", Catania, Italy; <sup>7</sup>Department of Neurological Surgery, Indiana University School of Medicine, Indianapolis, IN; <sup>8</sup>Department of Neurosurgery and Brain Metastasis Center, Memorial Sloan Kettering Cancer Center, New York, NY; <sup>9</sup>Department of Neurosurgery, Salford Royal Hospital, Salford, UK

**181: OUTCOMES OF RADICAL RESECTION OF NON-MELANOMA CUTANEOUS MALIGNANCIES WITH TEMPORAL BONE RESECTION: PRELIMINARY REPORT** - Roberto M Soriano, MD<sup>1</sup>; Juan M Revuelta, MD<sup>2</sup>; Rima S Rindler, MD<sup>3</sup>; Gustavo Pradilla, MD<sup>2</sup>; C. Arturo Solares, MD<sup>1</sup>; <sup>1</sup>Emory University School of Medicine, Department of Otolaryngology-Head and Neck Surgery; <sup>2</sup>Emory University School of Medicine, Department of Neurosurgery; <sup>3</sup>Mayo Clinic, Department of Neurosurgery

**9:40am-10:40am Proffered Papers Session 24: Pediatric/Quality of Life**

Buzzard/Coyote/  
Eagle

**182: DESCRIPTIVE ANALYSIS OF PEDIATRIC SINONASAL CANCER** - Jacqueline Tucker<sup>1</sup>; Sarah Benyo<sup>1</sup>; Shivam Patel<sup>1</sup>; F. Jeffrey Lorenz<sup>1</sup>; Maxwell Wright<sup>1</sup>; Brad Zacharia<sup>2</sup>; Neerav Goyal<sup>3</sup>; <sup>1</sup>Penn State College of Medicine; <sup>2</sup>Penn State Milton S. Hershey Medical Center, Department of Neurosurgery; <sup>3</sup>Penn State Milton S. Hershey Medical Center, Department of Otolaryngology

## 183: ANATOMIC PARAMETERS AND GROWTH OF THE PEDIATRIC SKULL BASE: ENDONASAL ACCESS IMPLICATIONS

- [Joshua Chen](#); Christopher Pool, MD; Einat Slonimsky, MD; Tonya King, PhD; Sandeep Pradham, MS; Meghan Wilson, MD; Penn State College of Medicine

## 184: DOES THE USE OF A NASOSEPTAL FLAP IN THE PEDIATRIC POPULATION AFFECT THE SKULL BASE AND MID FACE DEVELOPMENT?

- Niloofar Radgoudarzi<sup>1</sup>; Parisa Oviedo, MD<sup>1</sup>; [Javan Nation, MD](#)<sup>2</sup>; <sup>1</sup>UC San Diego; <sup>2</sup>Rady Children's Hospital/ UC San Diego

## 186: EFFECTS OF SKULL BASE MENINGIOMAS AND SURGICAL APPROACH ON NEUROCOGNITIVE OUTCOME

- [Christina Jackson, MD](#); Georgios A Zenonos, MD; Eric Wang, MD; Carl H Snyderman, MD; Luke C Henry, PhD; Paul A Gardner, MD; University of Pittsburgh Medical Center

## 187: POSTOPERATIVE QUALITY OF LIFE IN PATIENTS WITH AND WITHOUT CRSWNP UNDERGOING SURGICAL RESECTION OF INVERTED PAPILLOMA

- [Aman Prasad](#)<sup>1</sup>; Mandy K Salmon<sup>1</sup>; Siddhant H Tripathi<sup>2</sup>; Kathleen M Davin<sup>1</sup>; Heather Ungerer<sup>3</sup>; Auddie Sweis<sup>4</sup>; Tran Locke<sup>5</sup>; Elizabeth M Stevens<sup>3</sup>; James N Palmer<sup>3</sup>; Nithin D Adappa<sup>3</sup>; <sup>1</sup>Perelman School of Medicine at the University of Pennsylvania; <sup>2</sup>Univeristy of Cincinnati College of Medicine; <sup>3</sup>Department of Otorhinolaryngology - Head and Neck Surgery, University of Pennsylvania; <sup>4</sup>Division of Otolaryngology (ENT) - Head and Neck Surgery, NorthShore University; <sup>5</sup>Department of Otolaryngology - Head and Neck Surgery, Baylor College of Medicine

## 188: COMPARISON OF CHANGES IN QUALITY OF LIFE AFTER ENDOSCOPIC ENDONASAL APPROACH FOR CRANIOPHARYNGIOMAS VERSUS ANTERIOR SKULL BASE MENINGIOMAS

- [Matthew Sun](#); Benjamin Uy; Marisa Imbroane; Sophie Peeters; Justin McCormick; Huan Zhang; Morcos Nakhla; Reza Kianian; Emmanuel Villalpando; Marvin Bergsneider; Marilene Wang; UCLA

## 189: ASSESSING QUALITY OF LIFE AMONG RADIATION-INDUCED HYPOPITUITARISM PATIENTS

- [C. Yoonhee Ryder, BS](#)<sup>1</sup>; Erin L McKean, MD, MBA, FACS<sup>2</sup>; <sup>1</sup>University of Michigan Medical School; <sup>2</sup>University of Michigan, Department of Otolaryngology Head and Neck Surgery

9:40am-10:40am **Proffered Papers Session 25: Meningiomas**

*Pipai Kave I*

## 190: 30-DAY COMPLICATIONS AFTER SURGICAL RESECTION OF MENINGIOMAS IN NF2 PATIENTS

- [Precious C Oyem, BA](#)<sup>1</sup>; Erion De Andrade, MD<sup>2</sup>; Derrick Obiri-Yeboah, BS<sup>1</sup>; Pranay Soni, MD<sup>2</sup>; Roger Murayi, MD<sup>2</sup>; Diana Lopez, BS<sup>1</sup>; Miguel Recinos, BS<sup>2</sup>; Varun R Kshetry, MD<sup>2</sup>; Pablo F Recinos, MD<sup>2</sup>; <sup>1</sup>Cleveland Clinic Lerner College of Medicine; <sup>2</sup>Cleveland Clinic Neurological Institute

## 191: UNILATERAL VS BILATERAL SUBFRONTAL CRANIOTOMY IN MANAGEMENT OF OLFACTORY GROOVE MENINGIOMAS

- [Aaron R Plitt, MD](#); Abhinav Thummala, BS; Jeffrey Traylor, MD; Samuel L Barnett, MD; Bruce Mickey, MD; Tomas Garzon-Muvdi, MD; UT Southwestern

## 192: THE CLINICAL IMPLICATIONS OF THE GENOMIC PROFILING OF SPORADIC MULTIPLE MENINGIOMAS -

Shaurey Vetsa<sup>1</sup>; Sagar Vasandani<sup>1</sup>; Tanyeri Barak<sup>1</sup>; Kanat Yalcin<sup>1</sup>; Muhammad Jalal<sup>1</sup>; Arushii Nadar<sup>1</sup>; Stephanie M Aguilera<sup>1</sup>; Ketu Mishra-Gorur<sup>1</sup>; Danielle Miyagishima<sup>1</sup>; Neelan Marianayanam<sup>1</sup>; Robert K Fulbright<sup>2</sup>; Declan McGuone<sup>3</sup>; Murat Günel<sup>1</sup>; E. Zeynep Erson-Omay<sup>1</sup>; Jennifer Moliterno<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Yale School of Medicine, New Haven, CT, USA; <sup>2</sup>Department of Radiology and Biomedical Imaging, Neuroradiology Section, Yale School of Medicine, New Haven, CT, USA; <sup>3</sup>Department of Pathology, Yale School of Medicine, New Haven, CT, USA

## 193: PRIMARY AND ADJUVANT STEREOTACTIC RADIOSURGERY IN THE MANAGEMENT OF PETROCLIVAL MENINGIOMAS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF TREATMENT OUTCOMES -

Othman Bin Alamer, MBBS<sup>1</sup>; Paolo Palmisciano, MD<sup>2</sup>; Arka N Mallela, MD, MS<sup>3</sup>; Mohamed A Labib, MD<sup>4</sup>; William T Couldwell, MD, PhD<sup>5</sup>; L. Dade Lunsford, MD<sup>3</sup>; Hussam Abou-Al-Shaar, MD<sup>3</sup>; <sup>1</sup>College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia; <sup>2</sup>Department of Neurosurgery, Trauma Center, Gamma Knife Center, Cannizzaro Hospital, Catania, Italy; <sup>3</sup>Department of Neurological Surgery, University of Pittsburgh Medical Center, Pittsburgh, PA; <sup>4</sup>Department of Neurosurgery, University of Maryland School of Medicine, Baltimore, MD; <sup>5</sup>Department of Neurosurgery, Clinical Neurosciences Center, University of Utah, Salt Lake City, UT

## 194: CLASSIFICATION OF SUPRASELLAR MENINGIOMA - Basim M Noor Elahi, MBBS, MD; Abdulrazaq M Ajlan, FRCSC; King Saud University Medical City

## 195: PATIENT SELECTION FOR ADJUVANT RADIOTHERAPY IN WHO GRADE 2 INTRACRANIAL MENINGIOMAS - Alexander D Rebchuk, MD, MSc; Armaghan Alam, BSc; Celine D Hounjet, BSc; Bradley M Chaharyn, MD; Stephen Yip, MD, PhD; Peter A Gooderham, MD; Serge Makarenko, MD; University of British Columbia

## 196: TURBECULUM SELLAE ANGLE: ASSESSING CAUDAL REACH OF THE SUPRAORBITAL KEYHOLE CRANIOTOMY IN TUBERCULUM SELLA MENINGIOMAS. - Bledi C Brahimaj, MD<sup>1</sup>; Andrew K Wong, MD<sup>1</sup>; Krishna C Joshi, MD<sup>1</sup>; Richard W Byrne, MD<sup>1</sup>; Andre Beer-Furlan, MD, PhD<sup>2</sup>; <sup>1</sup>Rush University Medical Center; <sup>2</sup>Moffitt Cancer Center

## 197: SMELL OUTCOMES IN OLFACTORY GROOVE MENINGIOMA RESECTION IN UNILATERAL VS BILATERAL TRANSCRANIAL APPROACHES: A SYSTEMATIC REVIEW AND META-ANALYSIS - Michael A Bamimore, BSc<sup>1</sup>; Lina Marengo-Hillebrand, MD<sup>1</sup>; Krishnan Ravindran, MD<sup>1</sup>; Blake Perdakis<sup>2</sup>; Julio Rosado-Philippi, BSc<sup>3</sup>; Kaisorn Chaichana, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Mayo Clinic, Jacksonville FL; <sup>2</sup>College of Arts and Sciences, Duke University, Durham, NC; <sup>3</sup>School of Medicine, University of Puerto Rico, San Juan, PR

**9:40am-10:40am Proffered Papers Session 26: Microvascular Decompression/ Novel Techniques**

*Deer/Scorpion*

**198: LATE OUTCOMES AFTER MICROVASCULAR DECOMPRESSION FOR HEMIFACIAL SPASM: COHORT STUDY WITH 10-YEAR FOLLOW-UP** - Christopher S Graffeo, MD, MS<sup>1,2</sup>; Ahmed Helal, MBBCh, MSc<sup>1</sup>; Lucas P Carlstrom, MD, PhD<sup>1</sup>; Avital Perry, MD<sup>3</sup>; Frederick B Meyer, MD<sup>1</sup>; Bruce E Pollock, MD<sup>1</sup>; Michael J Link, MD<sup>1</sup>; <sup>1</sup>Mayo Clinic Rochester; <sup>2</sup>Barrow Neurological Institute; <sup>3</sup>Sheba Medical Center

**200: THE ROLE OF ANATOMICAL VARIATIONS OF POSTERIOR INFERIOR CEREBELLAR ARTERY (PICA) IN SURGICAL MANAGEMENT OF HEMIFACIAL SPASM (HFS)** - Yury Shulev; Alexander Trashin; Dmitry Pechiborsch; Konstantin Gordienko; Saint-Petersburg City Hospital 2

**201: INCIDENCE OF REPEAT PROCEDURES AND HEALTH CARE UTILIZATION FOLLOWING SURGERY, RADIOSURGERY AND PERCUTANEOUS PROCEDURES IN ELDERLY PATIENTS WITH TRIGEMINAL NEURALGIA** - Mayur Sharma, MD<sup>1</sup>; Tyler Ball<sup>2</sup>; Dengzhi Wang<sup>1</sup>; Beatrice Ugiliweneza<sup>1</sup>; Abbas Rattani<sup>1</sup>; Shia Wool<sup>1</sup>; Maxwell Boakye<sup>1</sup>; Joseph Neimat<sup>1</sup>; Brian Williams<sup>1</sup>; Norberto Andaluz<sup>3</sup>; <sup>1</sup>University of Louisville; <sup>2</sup>Vanderbilt University; <sup>3</sup>University Of Cincinnati

**202: THE INFLUENCE OF RADIOLOGIST SPECIALTY ON IDENTIFICATION OF VASCULAR COMPRESSION IN TRIGEMINAL NEURALGIA** - Rachel Blue, MD; Sabrina Heman-Ackah, MD, DPhil; Michael Spadola, MD; Sonia Amerja, MD; Jillian W Lazor, MD; John YK Lee, MD, MSCE; University of Pennsylvania

**203: PERCUTANEOUS RHIZOTOMY OF THE GASSERIAN GANGLION IN PATIENTS WITH MASS LESION-ASSOCIATED TRIGEMINAL NEURALGIA: A CASE SERIES** - Jordan C Pettit, MS<sup>1</sup>; Tamia Potter, BS<sup>1</sup>; Peter Ahorukomeye, BS<sup>1</sup>; Jakub Jarmula, BS<sup>2</sup>; Pablo F Recinos, MD<sup>3</sup>; Gene H Barnett, MD<sup>3</sup>; Varun Kshetty, MD<sup>3</sup>; <sup>1</sup>Case Western Reserve University School of Medicine; <sup>2</sup>Cleveland Clinic Lerner College of Medicine; <sup>3</sup>Cleveland Clinic Foundation Rose Ella Burkhardt Brain Tumor and Neuro-Oncology Center

**204: A NEW VASCULARIZED FLAP FOR CRANIAL BASE RECONSTRUCTION: THE POSTERIOR SEPTAL NASAL FLOOR MUCOSAL FLAP** - Andrew J Bowen, MD, MS; Ahmed Eltahir; Natalia Rezende, MD; Leonel Luciano, PhD; Katherine Xie, BS; Jamie Van Gompel, MD; Maria Peris Celda, MD, PhD; Garret Choby, MD; Carlos Pinheiro Neto, MD, PhD; Mayo Clinic

**9:40am-10:40am Proffered Papers Session 27: Pituitary**

*Bird/Roadrunner*

**206: IMAGING INDICATORS OF HIGH KI-67 PROLIFERATION INDEX IN PITUITARY MACROADENOMAS** - Abigail Funari, BS; Maximilian C Stahl, BA; Andre E Boyke, MS; Ankita Naraparaju; Kevin A Hsu, MD; Vijay Agarwal, MD; Albert Einstein College of Medicine

**208: STEREOTACTIC RADIOSURGERY OUTCOMES IN MEDICALLY AND SURGICALLY FAILED OR NON-SURGICAL CANDIDATES WITH MEDICALLY FAILED PROLACTINOMAS: A SYSTEMATIC REVIEW AND META-ANALYSIS** - Karan J Yagnik, MBBS; Irina Bancos, MD; Dana Erickson, MD; Garret Choby, MD; Nadia Laack, MD; Jamie J Van Gompel, MD; Mayo Clinic

**209: A RARE CASE OF EARLY AND ISOLATED BREAST CANCER METASTASIS TO THE PITUITARY: A CASE REPORT AND SYSTEMATIC REVIEW** - [Abdulrahman Albakr, MD](#); Neilen P Rasiah, PhD; Suzanne E Kosteniuk, MD; Yves P Starreveld, MD, PhD; University of Calgary

**210: PREDICTIVE CLINICAL AND SURGICAL FACTORS ASSOCIATED WITH RECURRENT APOPLEXY IN PITUITARY ADENOMAS** - [Rupert D Smit](#); Alan Siu; Sanjeet Rangarajan; Michael Karsy; Christopher J Farrell; Gurston Nyquist; Marc R Rosen; James J Evans; Thomas Jefferson University Hospital

**211: DETERMINING INITIAL PRESENTATION AND EVENTS LEADING TO DETECTION AND DIAGNOSIS OF PRIMARY SELLAR NEOPLASMS** - [Luis M Rubio, BS](#); Haley Plattner, BS; Arun Sharma, MD, MS, FACS; Devin Amin, MD, PhD; Dana L Crosby, MD, MPH, FARS, FAAOA; Southern Illinois University School of Medicine

**212: BURNT-OUT HEMORRHAGIC PITUITARY GLANDS: A CASE SERIES AND LITERATURE REVIEW** - [Abigail Funari, BS<sup>1</sup>](#); Seth S Jeong, BA<sup>2</sup>; Isabella L Pecorari, BS<sup>1</sup>; Ishan Naidu, BSE, BBA<sup>1</sup>; Isabella Flaquer, BS<sup>1</sup>; Cassidy L Anderson, BS<sup>1</sup>; Andre E Boyke, MS<sup>1</sup>; Vijay Agarwal, MD<sup>1</sup>; <sup>1</sup>Albert Einstein College of Medicine; <sup>2</sup>Medical University of South Carolina

**213: PITUITARY ADENOMA INCIDENCE, MANAGEMENT TRENDS, & LONG-TERM OUTCOMES: A 30-YEAR POPULATION-BASED ANALYSIS** - [Christopher S Graffeo, MD<sup>1</sup>](#); Karan J Yagnik, MBBS<sup>2</sup>; Lucas P Carlstrom, MD, PhD<sup>2</sup>; Nikita Lakomkin, MD<sup>2</sup>; Caroline Davidge-Pitts, MBBCh<sup>2</sup>; Dana Erickson, MD<sup>2</sup>; Garret Choby, MD<sup>2</sup>; Bruce E Pollock, MD<sup>2</sup>; Alanna M Chamberlain, PhD<sup>2</sup>; Jamie J Van Gompel, MD<sup>2</sup>; <sup>1</sup>Barrow Neurological Institute; <sup>2</sup>Mayo Clinic Rochester

9:40am-10:40am **Proffered Papers Session 28: Sinonasal Neoplasms**

Komatke Ballroom

## 214: MULTI-CENTER ANALYSIS OF CLINICAL OUTCOMES OF SINONASAL MUCOSAL MELANOMA - Matt Lechner, MD, PhD<sup>1</sup>;

Yoko Takahashi, PhD<sup>2</sup>; Mario Turri-Zanoni, MD<sup>3</sup>; Marco Ferrari, MD<sup>4</sup>; Jacklyn Liu, MSc<sup>5</sup>; Nicholas Counsell, MSc<sup>6</sup>; Davide Mattavelli, MD, PhD<sup>7</sup>; Vittorio Rampinelli, MD<sup>7</sup>; Davide Lombardi, MD<sup>7</sup>; Rami Saade, MD<sup>8</sup>; Ki Wan Park, MD<sup>9</sup>; Volker H Scharfetter, MD<sup>10</sup>; Alessandro Franchi, MD<sup>11</sup>; Roberta Maragliano, MD<sup>12</sup>; Simonetta Battocchio, MD<sup>13</sup>; Oscar Emanuel, MBBS<sup>14</sup>; Tim Fenton, PhD<sup>14</sup>; Francis M Vaz, MBBS<sup>15</sup>; Paul O'Flynn, MBBS<sup>15</sup>; David Howard, FRCS<sup>15</sup>; Paul Stimpson, FRCS, ORLHNS<sup>15</sup>; Simon Wang, MBBS<sup>16</sup>; S. Alam Hannan, FRCS, ORLHNS<sup>15</sup>; Samit Unadkat, FRCS, ORLHNS<sup>15</sup>; Jonathan Hughes, PhD, FRCS<sup>17</sup>; Raghav Dwivedi, PhD, FRCS, ORLHNS<sup>17</sup>; Cillian T Forde, MRCS<sup>15</sup>; Premjit Randhawa, MSc, FRCS, ORLHNS<sup>15</sup>; Simon Gane, FRCS, ORLHNS, MPhil, MBChB, DOHNS<sup>15</sup>; Jonathan Joseph, MBBS, FRCS, ORLHNS<sup>15</sup>; Peter J Andrews, MD, FRCS, ORLHNS<sup>15</sup>; Tianyu Zhu, PhD<sup>18</sup>; Andrew Teschendorff, PhD<sup>18</sup>; Gary Royle, PhD<sup>5</sup>; Helen Bewicke-Copley, MSc<sup>5</sup>; Christopher Steele, PhD<sup>5</sup>; Luke Williams, PhD<sup>5</sup>; Joaquin E Jimenez-Garcia, MD<sup>19</sup>; Eric W Wang, MD<sup>19</sup>; Carl Snyderman, MD, MBA<sup>19</sup>; Peter Lacy, FRCSI<sup>20</sup>; Robbie Woods, MD, FRCSI<sup>20</sup>; James P O'Neill, MD, FRCSI<sup>21</sup>; Quynh-Thu Le, MD<sup>22</sup>; Robert B West, MD<sup>22</sup>; Zara M Patel, MD<sup>9</sup>; Jayakar Nayak, MD, PhD<sup>9</sup>; Peter H Hwang, MD, FACS<sup>9</sup>; Mario Hermesen, PhD<sup>23</sup>; Jose Llorente, MD, PhD<sup>23</sup>; Fabio Facchetti, MD, PhD<sup>13</sup>; Piero Nicolai, MD<sup>4</sup>; Paolo Bossi, MD<sup>24</sup>; Paolo Castelnuovo, MD, PhD<sup>5</sup>; Amrita Jay, MFDSRCS<sup>25</sup>; Dawn Carnell, MBBS<sup>17</sup>; Martin D Forster, MBBS, PhD<sup>5</sup>; Diana M Bell, MD<sup>26</sup>; Valerie J Lund, FRCS, FRCSEd<sup>15</sup>; Ehab Y Hanna, MD, FACS<sup>2</sup>; <sup>1</sup>University College London; <sup>2</sup>Department of Head and Neck Surgery, The University of Texas MD Anderson Cancer Center, Houston, TX 77030, USA; <sup>3</sup>Unit of Otorhinolaryngology - Head & Neck Surgery, University of Insubria, Varese, Italy; <sup>4</sup>Section of Otorhinolaryngology - Head and Neck Surgery, Department of Neurosciences, University of Padova, Italy; <sup>5</sup>UCL Cancer Institute, University College London, London, UK; <sup>6</sup>Cancer Research UK & UCL Cancer Trials Centre, London, UK; <sup>7</sup>Unit of Otorhinolaryngology - Head and Neck Surgery, Department of Medical and Surgical Specialties, Radiological Sciences and Public Health, University of Brescia, Brescia, Italy; <sup>8</sup>Department of Otolaryngology Head and Neck Surgery, Lebanese American University, Beirut, Lebanon; <sup>9</sup>Rhinology & Endoscopic Skull Base Surgery, Department of Otolaryngology-H&N Surgery, Stanford University School of Medicine, Palo Alto, USA; <sup>10</sup>Department of Otorhinolaryngology, Medical University of Innsbruck, Innsbruck, Austria; <sup>11</sup>Department of Translational Research, University of Pisa, Pisa, Italy; <sup>12</sup>Department of Medicine and Surgery, Unit of Pathology, University of Insubria, Varese, Italy; <sup>13</sup>Pathology Unit, Department of Molecular and Translational Medicine, University of Brescia, ASST Spedali Civili, Brescia, Italy; <sup>14</sup>School of Biosciences, University of Kent, Canterbury, UK; <sup>15</sup>Royal National Throat, Nose and Ear Hospital and Head and Neck Centre, University College London Hospitals NHS Trust, London, United Kingdom; <sup>16</sup>Department of Oncology, Haematology and Bone Marrow Transplantation with Section Pneumology, Hubertus Wald Tumorzentrum, University Medical Center Hamburg-Eppendorf, Hamburg, Germany; <sup>17</sup>Head and Neck Centre, University College London Hospitals NHS Trust, London, UK; <sup>18</sup>CAS Key Laboratory of Computational Biology, Shanghai Institute of Nutrition and Health, University of Chinese Academy of Sciences, Shanghai, China; <sup>19</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine, Pittsburgh, USA; <sup>20</sup>Department of Otolaryngology Head and Neck Surgery, Beaumont Hospital, Dublin, Ireland; <sup>21</sup>The Royal College of Surgeons in Ireland, Dublin, Ireland; <sup>22</sup>Department of Radiation Oncology, Stanford University School of Medicine, Palo Alto, USA; <sup>23</sup>Department of Head and Neck Oncology, Instituto de Investigación Sanitaria del Principado de Asturias, Oviedo, Spain; <sup>24</sup>Medical Oncology, Department of Medical and Surgical Specialties, Radiological Sciences, and Public Health, University of Brescia, Brescia, Italy; <sup>25</sup>Department of Histopathology, University College London Hospitals NHS Trust, London, UK; <sup>26</sup>Disease Team Alignment: Head and Neck, City of Hope Medical Center, Duarte, USA



**215: RESPONSE TO INDUCTION CHEMOTHERAPY IN SINONASAL MALIGNANCIES - A SINGLE INSTITUTIONAL EXPERIENCE** - [Margaret Heller, BA](#)<sup>1</sup>; Michael Li, MD<sup>2</sup>; Marcelo Bonomi, MD<sup>3</sup>; Ricardo Carrau, MD<sup>2</sup>; Kyle VanKoeveering, MD<sup>2</sup>; <sup>1</sup>The Ohio State University College of Medicine; <sup>2</sup>The Ohio State University Wexner Medical Center, Department of Otolaryngology - Head and Neck Surgery; <sup>3</sup>The Ohio State University Wexner Medical Center, Department of Internal Medicine, Division of Medical Oncology

**216: OUTCOMES AFTER ENDOSCOPIC RESECTION OF INVERTED PAPILLOMA BASED ON PREOPERATIVE LUND-MACKAY SCORE** - [Heather N Ungerer, BA](#); Siddhant Tripathi, BS; Mandy K Salmon, BS; Aman Prasad, BS; Elizabeth M Stevens, BS; Kathleen M Davin, BS; Kevin Ig-Izevbekhai, BS; Auddie M Sweis, MD; Tran B Locke, MD; Michael A Kohanski, MD, PhD; James N Palmer, MD; Nithin D Adappa, MD; Hospital of the University of Pennsylvania

**217: ADJUNCTIVE ORBITAL APPROACHES FOR OPTIMIZING MANAGEMENT OF SINONASAL TUMORS** - [Kelsey A Roelofs, MD](#)<sup>1</sup>; Jivianne T Lee, Dr<sup>2</sup>; Jeffrey D Suh, MD<sup>2</sup>; Robert A Goldberg, MD, FACS<sup>1</sup>; Daniel B Rootman, MD, MS<sup>1</sup>; <sup>1</sup>Division of Oculoplastic and Orbital Surgery, University of California, Los Angeles; <sup>2</sup>Department of Head and Neck Surgery, University of California, Los Angeles

**218: SINONASAL MUCOSAL MELANOMA: AN ANALYSIS OF TREATMENT-RELATED COMPLICATIONS AND ASSOCIATED FACTORS** - [Brian J Johnson, MD](#); Ray Guo, MD; Eric J Moore, MD; Daniel L Price, MD; Kathryn M Van Abel, MD; Jamie J Van Compel; Michael J Link; Maria Peris-Celda, MD, PhD; Janalee K Stokken; Carlos Pinheiro-Neto, MD, PhD; Garret Choby, MD; Mayo Clinic

**219: OUTCOMES IN LOCOREGIONALLY ADVANCED SINONASAL SQUAMOUS CELL CARCINOMA** - [Neal R Godse, MD](#)<sup>1</sup>; Isabella Lao<sup>2</sup>; Georgios Zenonos<sup>3</sup>; Paul A Gardner<sup>3</sup>; Carl H Snyderman<sup>1</sup>; Eric W Wang, MD<sup>1</sup>; <sup>1</sup>University of Pittsburgh, Department of Otolaryngology; <sup>2</sup>University of Pittsburgh, School of Medicine; <sup>3</sup>University of Pittsburgh, Department of Neurological Surgery

**220: BENEFIT OF ANTIBIOTIC NASAL IRRIGATIONS AFTER SURGICAL RESECTION OF INVERTED PAPILLOMA** - [Siddhant H Tripathi, BS](#); Mandy K Salmon; Heather Ungerer; Auddie Sweis, MD; Tran Locke, MD; Aman Prasad; Elizabeth Stevens; Elizabeth Munkebjurg; Kathleen M Davin; James N Palmer, MD; Nithin D Adappa, MD; University of Pennsylvania Department of Otorhinolaryngology

**221: ANALYSIS OF STAGING, TREATMENT, AND TIME TO TREATMENT OF ADULT SINONASAL CANCER - A TRINETX DATABASE STUDY** - [Jacqueline Tucker](#)<sup>1</sup>; Shivam Patel<sup>1</sup>; Sarah Benyo<sup>1</sup>; Maxwell Wright<sup>1</sup>; F. Jeffrey Lorenz<sup>1</sup>; Brad Zacharia<sup>2</sup>; Neerav Goyal<sup>3</sup>; <sup>1</sup>Penn State College of Medicine; <sup>2</sup>Penn State Milton S. Hershey Medical Center, Department of Neurosurgery; <sup>3</sup>Penn State Milton S. Hershey Medical Center, Department of Otolaryngology

## 10:45am-11:45am Proffered Papers Session 29: Skull Base Reconstruction

Buzzard/Coyote/  
Eagle

### 222: STEP-WISE ALGORITHM FOR SKULL BASE RECONSTRUCTION IN ENDOSCOPIC ENDONASAL SURGERY

- [Kent Tadokoro, MD](#); Maria Belen Vega, MD; Philippe Lavigne, MD; Vanessa Hernandez-Hernandez, MD; Aldo Eguiluz-Melendez, MD; Eric Wang, MD; Carl H Snyderman, MD; Paul A Gardner, MD; University of Pittsburgh Medical Center

### 223: THE ENDOSCOPIC-ASSISTED PERICRANIAL FLAP: AN UPDATE ON CLINICAL OUTCOMES

- [Keonho A Kong, MD<sup>1</sup>](#); Mark Chaskes, MD, MBA<sup>1</sup>; Adam J Kimple, MD, PhD, FACS, FARS<sup>1</sup>; Charles S Ebert Jr., MD, MPH, FARS, FAAOA, FACS<sup>1</sup>; Brent A Senior, MD, FACS, FARS<sup>1</sup>; Adam M Zanation, MD<sup>1</sup>; Stephen C Hernandez, MD<sup>2</sup>; Brian D Thorp, MD, FACS, FARS<sup>1</sup>; <sup>1</sup>University of North Carolina; <sup>2</sup>Louisiana State University Health Sciences Center - New Orleans

### 224: SUPERIOR SEMICIRCULAR CANAL DEHISCENCE OUTCOMES IN A CONSECUTIVE SERIES OF 229 SURGICAL REPAIRS WITH MIDDLE CRANIAL FOSSA CRANIOTOMY

- [Khashayar Mozaffari, BS<sup>1</sup>](#); Anjali Pradhan<sup>1</sup>; Ansley Unterberger<sup>1</sup>; Courtney Duong<sup>1</sup>; Farinaz Ghodrati<sup>1</sup>; Russell De Jong<sup>2</sup>; Mahlet Mekonnen<sup>1</sup>; Michael Johanis<sup>2</sup>; Tyler Miao<sup>2</sup>; Isaac Yang, MD<sup>1</sup>; Quinton Gopen, MD<sup>2</sup>; <sup>1</sup>UCLA department of neurosurgery; <sup>2</sup>UCLA department of Head and Neck Surgery

### 225: RECONSTRUCTION IN EXPANDED ENDOSCOPIC ENDONASAL FOR TUBERCULUM SELLAE MENINGIOMAS: SURGICAL RESULTS

- [Erion J de Andrade, MD](#); Connor Sommerfeld, MD; Raj Sindwani, MD; Troy Woodward; Varun Kshetry; Pablo Recinos; Cleveland Clinic

### 226: UTILITY OF ABDOMINAL FAT GRAFT AND COLLAGEN SPONGE OVERLAY IN REDUCING THE INCIDENCE OF CSF LEAK AFTER RETROMASTOID CRANIOTOMY

- [Richard J Garling, MD](#); Regin J Mallari, BS; Walavan Sivakumar, MD; Garni Barkhoudarian, MD; Daniel F Kelly, MD; Pacific Neuroscience Institute

### 227: SUPERIORLY BASED MIDDLE TURBINATE FLAP FOR ANTERIOR CRANIAL BASE RECONSTRUCTION: A CADAVERIC FEASIBILITY STUDY AND CASE SERIES

- [Mark B Chaskes, MD, MBA](#); Blair Barton, MD; Michael Karsy, MD; Mindy R Rabinowitz; Gurston G Nyquist, MD; Christopher Farrell, MD; James J Evans, MD; Marc R Rosen, MD; Thomas Jefferson University hospital

### 228: SUPERIOR SEMICIRCULAR CANAL DEHISCENCE SYNDROME, THE OTTAWA HOSPITAL EXPERIENCE

- [Rafael Ochoa-Sanchez, PhD<sup>1</sup>](#); Mazen Alotaibi<sup>2</sup>; Shaun Kilty<sup>1</sup>; Charles Agbi<sup>2</sup>; Andre Lamothe<sup>3</sup>; David Schramm<sup>1</sup>; [Fahad Alkherayf, MD, MSc<sup>2</sup>](#); <sup>1</sup>The Ottawa Hospital Research Institute, Ottawa, Canada; <sup>2</sup>Division of Neurosurgery, Department of Surgery, The Ottawa Hospital, Ottawa, Canada; <sup>3</sup>Department of Otolaryngology- Head & Neck Surgery, The Ottawa Hospital, Ottawa, Canada

### 229: THE MODIFIED ANTERIOR LATERAL NASAL WALL FLAP: ANATOMICAL DESCRIPTION AND FUTURE APPLICATIONS

- [Cheyanne M Silver, MD](#); Luciano Leonel, PhD; Carlos Pinheiro Neto, MD, PhD; Mayo Clinic

**10:45am- 11:45am Proffered Papers Session 30: Innovative Technologies**

*Pipai Kave I*

**230: ENDOSCOPIC PARAMAXILLARY APPROACH TO THE MIDDLE CRANIAL FOSSA** - Ricardo W Pulido, MD<sup>1</sup>; Nathaniel Reeve, MD<sup>1</sup>; Randall Bly, MD<sup>1</sup>; Blaise Marshall, MS<sup>2</sup>; Waleed Abuzeid, MD<sup>1</sup>; Kris Moe, MD<sup>1</sup>; <sup>1</sup>University of Washington; <sup>2</sup>Eastern Virginia Medical School

**231: APPLICATION OF HIGH-RESOLUTION 7-TESLA MRI TO INVESTIGATE SEX-DEPENDENT DIFFERENCES IN AMYGDALA SUBNUCLEI IN TRIGEMINAL NEURALGIA** - Judy Alper, PhD Candidate<sup>1</sup>; Alan Seifert, PhD<sup>1</sup>; Gaurav Verma, PhD<sup>1</sup>; Yael Jacob, PhD<sup>1</sup>; Ameen Al Qadi, BS<sup>1</sup>; Raj K Shrivastava, MD<sup>2</sup>; Bradley N Delman, MD, MS<sup>3</sup>; Priti Balchandani, PhD<sup>1</sup>; <sup>1</sup>BioMedical Engineering and Imaging Institute at Mount Sinai Hospital; <sup>2</sup>Department of Neurosurgery, Mount Sinai Hospital; <sup>3</sup>Department of Diagnostic, Molecular, and Interventional Radiology, Icahn School of Medicine at Mount Sinai

**232: INTERNAL JUGULAR VEIN COMPRESSION SYNDROME, EXTREME LATERAL INFRACONDYLAR (ELI) APPROACH AND PRELIMINARY CLINICAL OUTCOME** - Kaiyun Yang<sup>1</sup>; Giyarpuram Prashant<sup>1</sup>; Kevin Shah<sup>1</sup>; Peter Costantino<sup>2</sup>; Athos Patsalides<sup>1</sup>; Amir R Dehdashti<sup>1</sup>; <sup>1</sup>North Shore University Hospital; <sup>2</sup>Lenox Hill Hospital

**233: THREE-DIMENSIONAL BIOPRINTING AND APPLICATION IN SKULL BASE SURGERY** - Blair Barton, MD; Edward McCoul; Doan Nguyen, PhD; Ochsner Medical Center

**234: TRIGEMINAL NEURALGIA SECONDARY TO EPIDERMOID CYST OF THE ANTEROLATERAL CISTERNS OF THE BRAINSTEM** - Mauro Alberto Segura-Lozano; Adriana Fernanda Segura-Zenón; Yael Rodrigo Torres-Torres; Octavio Carranza-Rentería; Aarón Giovanni Munguía-Rodríguez; Neurología Segura Medical Center. Hospital Angeles Morelia. Morelia, Michoacán, México.

**235: MIDLINE INTERCAVERNOUS DURAL APPROACH TO THE CAVERNOUS SINUS: A CADAVERIC STEP-BY-STEP ILLUSTRATION AND CASE ILLUSTRATION** - Rima Rindler, MD; Luciano C Leonel, PhD; Panagiotis Kerezoudis, MD, MS; Carlos Pinheiro Neto, MD, PhD; Maria Peris Celda, MD, PhD; The Mayo Clinic

**236: ENDOSCOPIC PARAMAXILLARY APPROACH TO SKULL BASE LESIONS OF THE MIDDLE CRANIAL FOSSA** - Nathaniel H Reeve, MD; Waleed M Abuzeid, MBBS; Aria Jafari, MD; Ian Humphreys, DO; Kris S Moe, MD; University of Washington School of Medicine, Department of Otolaryngology-Head & Neck Surgery

**237: MINIMALLY INVASIVE "MINI-PTERIONAL" APPROACH FOR CLIPPING OF ANTERIOR CIRCULATION ANEURYSMS: CASE SERIES AND LITERATURE REVIEW** - Ehsan Dowlati<sup>1</sup>; Armin Mortazavi, BS<sup>2</sup>; Alexander Tai, MD<sup>1</sup>; Daniel R Felbaum, MD<sup>1</sup>; Samir Sur, MD<sup>1</sup>; <sup>1</sup>Medstar Georgetown University Hospital; <sup>2</sup>Georgetown University School of Medicine

**10:45am- 11:45am Proffered Papers Session 31: Skull Base Surgery — Miscellaneous**

*Deer/Scorpion*

**238: STAGED COMBINED ENDOSCOPIC ENDONASAL AND TRANSCRANIAL APPROACHES TO SKULL BASE PATHOLOGIES** - [Hussam Abou-Al-Shaar, MD](#); Aneek Patel, BS; Arka N Mallela, MD, MS; Emade Jaman, BS; Eric W Wang, MD; Georgios A Zenonos, MD; Carl H Snyderman, MD; Paul A Gardner, MD; University of Pittsburgh Medical Center

**241: VENOUS THROMBOEMBOLISM PROPHYLAXIS IN ELECTIVE BRAIN TUMOR RESECTION: A SURVEY OF BOARD-CERTIFIED NEUROSURGEONS IN THE UNITED STATES** - [Nimer Adeeb, MD](#); LSU

**242: OLFATORY OUTCOMES IN PATIENTS UNDERGOING TRANSPLANUM AND TRANSTUBERCULUM SKULL BASE SURGERY** - [Harish Dharmarajan](#)<sup>1</sup>; Zainab Balogun<sup>1</sup>; Anandraj Kanwar<sup>2</sup>; Paul Gardner<sup>3</sup>; Georgios Zenonos<sup>3</sup>; Carl Snyderman<sup>1</sup>; Katie Traylor<sup>2</sup>; Eric W Wang<sup>1</sup>; <sup>1</sup>UPMC Department of Otolaryngology; <sup>2</sup>UPMC Department of Radiology; <sup>3</sup>UPMC Department of Neurosurgery

**243: METABOLIC SYNDROME AND 30-DAY OUTCOMES FOLLOWING RESECTION OF BENIGN CRANIAL NERVE NEOPLASMS** - [Rushi Patel, BA](#)<sup>1</sup>; Kathryn Bregna, BA<sup>2</sup>; Esther Ogbuokiri, BA<sup>2</sup>; Ariel Omiunu, BS<sup>2</sup>; Prayag Patel, MD<sup>2</sup>; Christina H Fang, MD<sup>3</sup>; Jordon G Grube, MD<sup>4</sup>; Jean Anderson Eloy, MD, FACS, FARS<sup>2</sup>; <sup>1</sup>Rutgers New Jersey Medical School; <sup>2</sup>Rutgers New Jersey Medical School - Department of Otolaryngology - Head and Neck Surgery; <sup>3</sup>Montefiore Medical Center, Department of Otorhinolaryngology - Head & Neck Surgery; <sup>4</sup>Albany Medical Center, Division of Otolaryngology/Head and Neck Surgery, Department of Surgery

**244: MIDDLE FOSSA APPROACH FOR MENINGOCELE AND ENCEPHALOCELE IN ADVANCED CHRONIC EAR DISEASE: WHEN TO PREPARE** - [Mia E Miller, MD](#)<sup>1</sup>; Kevin A Peng<sup>2</sup>; John L Go<sup>3</sup>; Gregory P Lekovic<sup>2</sup>; <sup>1</sup>Cedars-Sinai Otolaryngology; <sup>2</sup>House Clinic; <sup>3</sup>USC

**245: UNUSUAL MIMICKER OF ODONTOGENIC CARCINOMA: PRIMARY SYNOVIAL SARCOMA OF THE TEMPOROMANDIBULAR JOINT- A CRITICAL ROLE FOR MOLECULAR DIAGNOSIS** - [Diana Bell, MD](#)<sup>1</sup>; Mehmet Altan, MD<sup>2</sup>; Paul W Gidley, MD<sup>2</sup>; <sup>1</sup>City of Hope Medical Center; <sup>2</sup>MD Anderson Cancer Center

## 10:45am- 11:45am Proffered Papers Session 32: Cranial Nerves

*Bird/Roadrunner*

**252: MICROVASCULAR DECOMPRESSION FOR GLOSSOPHARYNGEAL NEURALGIA. A SINGLE CENTER EXPERIENCE.** - [Adriana Fernanda Segura-Zenón](#); Aarón Giovanni Munguía-Rodríguez; Yael Rodrigo Torres-Torres; Emmanuel Hernández-Ruiz; Mauro Alberto Segura-Lozano; Octavio Carranza-Rentería; Neurología Segura Medical Center. Hospital Angeles Morelia. Morelia, Michoacán, México.

**246: ELECTROMYOGRAPHIC PREDICTORS OF ABDUCENS PALSY OUTCOMES AFTER ENDOSCOPIC SKULL BASE SURGERY** - [Joaquin E Jimenez, MD<sup>1</sup>](#); Mahmoud Omar, BS<sup>2</sup>; Gregory Adams, BS<sup>3</sup>; Tina Costacou, PhD<sup>4</sup>; Parthasarathy Thirumala, MD<sup>3</sup>; Carl H Snyderman, MD<sup>1</sup>; Paul A Gardner, MD<sup>5</sup>; Georgios A Zenonos, MD<sup>5</sup>; Eric W Wang, MD<sup>1</sup>; <sup>1</sup>Department of Otolaryngology - Head & Neck Surgery, University of Pittsburgh Medical Center; <sup>2</sup>University of Pittsburgh School of Medicine; <sup>3</sup>Center for Clinical Neurophysiology, University of Pittsburgh Medical Center; <sup>4</sup>Department of Epidemiology, University of Pittsburgh School of Medicine; <sup>5</sup>Department of Neurological Surgery, University of Pittsburgh Medical Center

**247: EFFECTS OF BONE METABOLIC MARKERS ON THE CLINICAL OUTCOMES OF SURGICALLY TREATED SUPERIOR SEMICIRCULAR CANAL DEHISCENCE PATIENTS: A CASE SERIES OF 250 REPAIRS** - [Mahlet Mekonnen, BS](#); Daniel Kulinich, MS; Courtney Duong, BS; Ava Kjos; Roan Anderson; Quinton Gopen, MD; Isaac Yang, MD; UCLA

**249: PREDICTORS OF HEARING FUNCTIONAL OUTCOME FOLLOWING SURGERY FOR CEREBELLOPONTINE ANGLE MENINGIOMA** - Gregory P Lekovic, MD, PhD; [Nida Fatima, MD](#); Anne Maxwell, MD; Gautam U Mehta, MD; Zachary R Barnard, MD; Eric Wilson, MD; Derald E Brackmann, MD; William H Slattery, MD; The House Institute Foundation

## 10:45am- 11:45am Proffered Papers Session 33: Transorbital Surgery/Vascular Malformations

*Komatke Ballroom*

**253: EXPLORATORY ANALYSIS OF THE BIPORTAL TRANSORBITAL APPROACH; QUANTITATIVE COMPARISON OF ANTERIOR SUBFRONTAL CRANIOTOMY VERSUS BILATERAL TRANSORBITAL ENDOSCOPIC AND MICROSCOPIC APPROACHES TO THE ANTERIOR CRANIAL FOSSA AND PARAMEDIAN VASCULATURE** - [Lena Mary Houlihan](#); Thanapong Loymak; Irakliy Abramov; Jubran H. Jubran; Ann J. Staudinger Knoll; Jacob T. Howshar; Dara S. Farhadi; Lea Scherschinski; Michael G.J. O'Sullivan; Michael T. Lawton; Mark C. Preul; Barrow Neurological Institute

**254: EXTENDED ENDOSCOPIC TRANSORBITAL APPROACH WITH SUPERIOR-LATERAL ORBITAL RIM OSTEOTOMY: CADAVERIC FEASIBILITY STUDY AND CLINICAL IMPLICATION** - Jaejoon Lim<sup>1</sup>; Kyoung Su Sung<sup>2</sup>; [Ju Hyung Moon<sup>3</sup>](#); <sup>1</sup>Bundang CHA Medical Center; <sup>2</sup>Dong-A University Hospital; <sup>3</sup>Severance Hospital, Yonsei University College of Medicine

**255: THE ART AND SCIENCE OF BRAINSTEM CAVERNOUS MALFORMATION SURGERY: A MODERN NEUROSURGICAL REVIEW OF TECHNIQUES** - [Ciyarpuram N Prashant, MD<sup>1</sup>](#); Amir R Dehdashti<sup>2</sup>; <sup>1</sup>Thomas Jefferson University; <sup>2</sup>North Shore University Hospital

**256: TRANSORBITAL APPROACH FOR RESECTION OF INTRACRANIAL SKULL BASE LESIONS: OUTCOMES AND COMPLICATIONS** - [Christina Feller, BS, BA](#); Eduardo Martinez Del Campo, MD; Andrew Montoure, MD; Lauren Maloley, MD; Gillian Harrison, MD; Sang Hun Hong, MD; Nathan Zwagerman, MD; Medical College of Wisconsin

**257: APPROACH SELECTION STRATEGIES FOR REPEAT RESECTION OF CAVERNOUS MALFORMATIONS: COHORT STUDY** - [Christopher S Graffeo, MD](#)<sup>1</sup>; Dimitri Benner, BS<sup>1</sup>; Diego Devia, MD<sup>2</sup>; Joshua Catapano, MD<sup>1</sup>; Visish Srinivasan, MD<sup>1</sup>; Michael T Lawton, MD<sup>1</sup>; <sup>1</sup>Barrow Neurological Institute; <sup>2</sup>Pontifical Xavierian University - Hospital Universitario San Ignacio

**258: MICROSURGICAL OBLITERATION OF DURAL ARTERIOVENOUS FISTULAS AT THE CRANIOCERVICAL JUNCTION** - [Mohamed M Salem](#)<sup>1</sup>; Daniel Tonetti<sup>2</sup>; Kunal Raygor<sup>2</sup>; Samon Tavakoli-Sabour<sup>3</sup>; Brian T Jankowitz<sup>1</sup>; Justin Mascitelli<sup>3</sup>; Robert Starke<sup>4</sup>; Peter Kan<sup>5</sup>; Adib Abl<sup>2</sup>; Jan-Karl Burkhardt<sup>1</sup>; <sup>1</sup>University of Pennsylvania; <sup>2</sup>University of California San Francisco; <sup>3</sup>UT Health San Antonio; <sup>4</sup>University of Miami; <sup>5</sup>University of Texas Medical Branch

**259: SMOKER STATUS AND AVM RUPTURE: A META-ANALYSIS** - Stefan W Koester<sup>1</sup>; Savio Batista<sup>2</sup>; Raphael Bertani<sup>2</sup>; [Dimitri Benner](#)<sup>3</sup>; <sup>1</sup>Vanderbilt University School of Medicine; <sup>2</sup>Hospital Municipal Miguel Couto; <sup>3</sup>Barrow Neurological Institute

**260: OPTIMAL ANTEROLATERAL ACCESS CORRIDORS TO THE ANTERIOR SKULL BASE AND PARAMEDIAN VASCULATURE: QUANTITATIVE ANALYSIS OF UNILATERAL SUPRAORBITAL, TRANSORBITAL MICROSCOPIC, AND TRANSORBITAL NEUROENDOSCOPIC APPROACHES** - [Lena Mary Houlihan](#)<sup>1</sup>; Thanapong Loymak<sup>1</sup>; Irakliy Abramov<sup>1</sup>; Jubran H. Jubran<sup>1</sup>; Ann J. Staudinger Knoll<sup>1</sup>; Jacob T. Howshar<sup>1</sup>; Chelsea Tran<sup>1</sup>; Michael G.J. O'Sullivan<sup>2</sup>; Michael T. Lawton<sup>1</sup>; Mark C. Preul<sup>1</sup>; <sup>1</sup>Barrow Neurological Institute; <sup>2</sup>Cork University Hospital



# Poster Listing

## **P001: OUR APPROACH TO COMPLEX FRONTAL SINUS FRACTURES WITH REVIEW OF THE LITERATURE**

- [James Brazdzionis](#), Neurosurgery Resident Physician<sup>1</sup>; Omron Hassan, Medical Student<sup>2</sup>; Lena Huang, Medical Student<sup>2</sup>; Ira Bowen, Neurosurgery Resident Physician<sup>1</sup>; James Berry, Neurosurgery Resident Physician<sup>1</sup>; Saman Farr, Neurosurgery Resident Physician<sup>1</sup>; Stacey Podkovik, Neurosurgery Resident Physician<sup>1</sup>; Hammad Ghanchi, Neurosurgery Resident Physician<sup>1</sup>; Ben Caudill, FNPC<sup>1</sup>; Jacqueline Horn, RN<sup>1</sup>; Jason Duong, Neurosurgeon<sup>1</sup>; Raed Sweiss, Neurosurgeon<sup>1</sup>; <sup>1</sup>Neurosurgery, Riverside University Health System Medical Center, Moreno Valley, USA; <sup>2</sup>Department of Clinical Sciences, College of Osteopathic Medicine, Touro University Nevada, Henderson, NV

## **P003: ANATOMICAL STEP-BY-STEP DISSECTION OF COMPLEX SKULL BASE APPROACHES FOR TRAINEES: SURGICAL ANATOMY OF THE FRONTOTEMPORAL AND ORBITOZYGOMATIC CRANIOTOMIES**

- [Lucas P Carlstrom](#), MD, PhD; Christopher S Graffeo; Luciano Leonel, PhD; Avital Perry, MD; Michael J Link, MD; Maria Peria-Celda, MD, PhD; Mayo Clinic

## **P005: ANATOMICAL STEP-BY-STEP DISSECTION OF COMPLEX SKULL BASE APPROACHES FOR TRAINEES: SURGICAL ANATOMY OF THE FAR LATERAL APPROACH**

- [Christopher S Graffeo](#), MD, MS<sup>1,2</sup>; Avital Perry, MD<sup>3</sup>; [Lucas P Carlstrom](#), MD, PhD<sup>1</sup>; Luciano Leonel, PhD<sup>1</sup>; Jonathan Morris, MD<sup>1</sup>; Colin L Driscoll, MD<sup>1</sup>; Michael J Link, MD<sup>1</sup>; Maria Peris-Celda, MD, PhD<sup>1</sup>; <sup>1</sup>Mayo Clinic Rochester; <sup>2</sup>Barrow Neurological Institute; <sup>3</sup>Sheba Medical Center

## **P006: THE POSTERIOR LIGAMENT OF THE INCUS ("WHITE DOT"): A RELIABLE SURGICAL LANDMARK FOR THE FACIAL RECESS**

- [Ryan McMillan](#), MD<sup>1</sup>; Ashley Nassiri, MD<sup>1</sup>; Luciano Leonel, PhD<sup>1</sup>; Natalia Rezende, MD<sup>1</sup>; Maria Peris Celda, MD, PhD<sup>1</sup>; Alex Sweeney, MD<sup>2</sup>; Matthew Carlson, MD<sup>1</sup>; <sup>1</sup>Mayo Clinic; <sup>2</sup>Baylor College of Medicine

## **P007: CLASSIC AND MODIFIED INFRATEMPORAL FOSSA TYPE A APPROACHES TO THE JUGULAR FORAMEN: A PRACTICAL STEP-BY-STEP 3D GUIDE FOR SURGEONS**

- Ashley M Nassiri, MD, MBA; [Luciano C Leonel](#), PhD; Maria Peris-Celda, MD, PhD; Matthew L Carlson, MD; Mayo Clinic

## **P012: IMAGING OF THE CAVERNOUS SINUS: WHAT THE SKULL BASE SURGEON NEEDS TO KNOW -**

Nikita Deshpande, BS<sup>1</sup>; Junaid K Sandozi, MD<sup>2</sup>; [Ann K Jay](#), MD<sup>2</sup>; <sup>1</sup>Georgetown University School of Medicine, Washington, DC, USA; <sup>2</sup>Department of Radiology, MedStar Georgetown University Hospital, Washington, DC, USA

## **P013: COMBINED EXTRADURAL/INTRADURAL TRANS-SYLVIAN APPROACH FOR SUPERIOR ORBITAL FISSURE AND OPTIC NERVE DECOMPRESSION, CAVERNOUS SINUS BIOPSY, AND MESIAL TEMPORAL LESION RESECTION: AN UNUSUAL CASE OF A TOLOSA-HUNT VARIANT WITH INTRAPARENCHYMAL EXTENSION.**

- Armin Mortazavi, BS<sup>1</sup>; [Ehsan Dowlati](#), MD<sup>2</sup>; Daniel R Felbaum, MD<sup>2</sup>; Samir Sur, MD<sup>2</sup>; <sup>1</sup>Georgetown University School of Medicine; <sup>2</sup>MedStar Georgetown University Hospital

## **P015: CEREBROSPINAL FLUID RHINORRHEA FOLLOWING A COVID-19 NASOPHARYNGEAL SWAB: A CASE REPORT AND REVIEW OF THE LITERATURE**

- [Ghassen Gader](#); Mohamed Badri, MD; Rochdi Nasri, Associate Professor; Mouna Rkhami, MD; Kamel Bahri, Professor; Ihsèn Zammel, MD; University of Tunis-El Manar, Faculty of Medicine of Tunis, Department of Neurosurgery, Trauma and Burns Center, Ben Arous

## **P016: CEREBROSPINAL FLUID LEAKS FOLLOWING ANTERIOR SKULL BASE TRAUMA: A SYSTEMATIC REVIEW OF THE LITERATURE**

- [Paolo Palmisciano](#), MD<sup>1</sup>; Resi Pucci, MD<sup>2</sup>; Andrea Cassoni, MD<sup>2</sup>; Luca Ricciardi, MD<sup>3</sup>; Lidia Strigari, MD<sup>4</sup>; Gianluca Scalia, MD<sup>5</sup>; Valentino Valentini, MD<sup>2</sup>; Giuseppe Umana, MD, MSc<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Cannizzaro Hospital, Catania, Italy; <sup>2</sup>Department of Oral and Maxillofacial Sciences, Sapienza University of Rome, Italy; <sup>3</sup>Division of Neurosurgery, Department of NESMOS - Sapienza University of Rome, Italy; <sup>4</sup>Department of Medical Physics, IRCCS University Hospital of Bologna, Bologna, Italy; <sup>5</sup>Department of Neurosurgery, Highly Specialized Hospital and of National Importance "Garibaldi", Catania, Italy

## **P017: UNUSUAL CAUSE FOR CEREBROSPINAL FLUID LEAK FOLLOWING TRANS LABYRINTHINE ACOUSTIC NEUROMA RESECTION**

- [Aoi Shimomura](#), BA, MA; Samantha Cerasiello, MD; Miri Kim, MD; Edward Westfall, MD; Douglas Anderson, MD; John Leonetti, MD; Loyola University Medical Center

## **P018: MINIMALLY INVASIVE POSTERIOR FOSSA DECOMPRESSION AND DURAPLASTY: STEP BY STEP TECHNIQUE**

- [R A C B Santiago](#), MD; M Mandel, MD, PhD; B Ibrahim, MD; M Obrzut, MD; B Adada, MD; H Borghei-Razavi, MD; Cleveland Clinic Florida

## **P019: SEMISITTING POSITION FOR POSTERIOR FOSSA DECOMPRESSION - A SAFE CHOICE FOR HIGH-BMI-CHIARI-I-MALFORMATION PATIENTS**

- [R A C B Santiago](#), MD; M Mandel, MD, PhD; M Obrzut, MD; H Borghei-Razavi, MD; B Adada; Cleveland Clinic

## Poster Listing (cont.)

**P021: AN OVERVIEW OF CLIVAL LESIONS** - [Adrian M Chiodo](#); John Y Choi, MD; Rashmi S Thakkar, MD; MedStar Georgetown University Hospital

**P022: RETRO-ORBITAL HEMATOMA TWENTY-FOUR HOURS AFTER ENDOSCOPIC SINUS SURGERY: A CASE REPORT** - [Dylan A Fall, BS](#); Cameron Sheehan, MD; Kathleen K Gallagher, MD, FACS; Baylor College of Medicine

**P023: PRESENTATION AND POST-SURGICAL OUTCOMES OF PATIENTS WITH SPHENO-ORBITAL MENINGIOMAS** - [Joshua C Kurian, BA](#); Abhinav Thummala, BA; Aaron Plitt, MD; Jeffrey Traylor, MD; Samuel Barnett, MD; Bruce Mickey, MD; Tomas Garzon-Muvdi, MD; UT Southwestern

**P024: FOREIGN ACCENT SYNDROME AFTER RETROSIGMOID CRANIOTOMY FOR VESTIBULAR SCHWANNOMA: A CASE REPORT** - [H Jackson Macguire](#)<sup>1</sup>; Wesley A Greene, MD<sup>2</sup>; Alexander G Bien, MD<sup>2</sup>; <sup>1</sup>Mercer School of Medicine; <sup>2</sup>University of Oklahoma College of Medicine Department of Otolaryngology - Head and Neck Surgery

**P025: CAVERNOUS SINUS SYNDROME AFTER ENDOSCOPIC TRANSSPHENOIDAL PITUITARY SURGERY WITH SUCCESSFUL EARLY DECOMPRESSION AND POSTOPERATIVE COURSE** - G. Rene Alvarez Berastegui, MD, Neurosurgeon<sup>1</sup>; Raul Ramírez Grueso, MD, Neurosurgeon<sup>2</sup>; [Melissa Mayo Patiño, MD](#)<sup>2</sup>; Aranza Tafur Borrero, MD<sup>2</sup>; Andres Fuentes Francia, MD, Otolaryngologist<sup>1</sup>; <sup>1</sup>Hospital Universitario Nacional; <sup>2</sup>Universidad Nacional de Colombia

**P026: COMPARING RATES OF POSTOPERATIVE MENINGITIS AFTER ENDOSCOPIC ENDONASAL PROCEDURES BASED ON MRSA/MSSA COLONIZATION AND ANTIBIOTIC PROPHYLAXIS** - [Cordelia Orillac, MD](#)<sup>1</sup>; Aneek S Patel, BS<sup>1</sup>; Yosef Dastagirzada, MD<sup>1</sup>; Carolina G Benjamin, MD<sup>2</sup>; Seth Lieberman, MD<sup>1</sup>; Richard A Lebowitz, MD<sup>1</sup>; John G Golfinos, MD<sup>1</sup>; Donato Pacione<sup>1</sup>; <sup>1</sup>NYU Langone Health; <sup>2</sup>University of Miami Health System

**P027: EARLY CT AND MRI SIGNS OF INVASIVE FUNGAL SINUSITIS COMPLICATING COVID-19 INFECTION MANAGED BY CORTICOSTEROIDS** - Ahmed Youssef, MD, PhD, FACS<sup>1</sup>; Ahmed Samir, MD, PhD<sup>2</sup>; [Abd El Rahman Ahmed El Tahan, Professor](#)<sup>3</sup>; <sup>1</sup>OUHSC; <sup>2</sup>Alexandria Medical School; <sup>3</sup>Suez University Hospital

**P028: COVID-19 ASSOCIATED ACUTE INVASIVE FUNGAL RHINOSINUSITIS** - Estephania Candelo Gomez, MD; Angela M Donaldson, MD; [Osarenoma Olomu, MD](#); Mayo Clinic

**P029: ATRIOVENTRICULAR BLOCK ASSOCIATED WITH GLOSSOPHARYNGEAL NEURALGIA** - Yael Rodrigo Torres-Torres; Aarón Giovanni Munguía-Rodríguez; Octavio Carranza-Rentería; [Adriana Fernanda Segura-Zenón](#); Emmanuel Hernández-Ruiz; Mauro Alberto Segura-Lozano; Neurología Segura Medical Center. Hospital Angeles Morelia. Morelia, Michoacán, México.

**P031: ENDOSCOPIC RESECTION OF CRANIOPHARYNGIOMAS: A SINGLE-INSTITUTION CASE SERIES** - [Douglas Farquhar](#); Mark Chaskes; Albert Kong; Adam Kimple; Charles Ebert; Brian Thorp; Brent Senior; University of North Carolina

**P034: OPTIMAL METRIC OF SURGICAL FREEDOM: VOLUME OF SURGICAL FREEDOM COMPARED WITH OTHER METRICS OF INSTRUMENT MANEUVERABILITY** - [Lena Mary Houlihan](#)<sup>1</sup>; David Naughton<sup>1</sup>; Thanapong Loymak<sup>1</sup>; Irakli Abramov<sup>1</sup>; Ann J Staudinger Knoll<sup>1</sup>; Ryan S Pevey<sup>1</sup>; Mohamed A Labib<sup>1</sup>; Michael GJ O'Sullivan<sup>2</sup>; Michael T Lawton<sup>1</sup>; Mark C. Preul<sup>1</sup>; <sup>1</sup>Barrow Neurological Institute; <sup>2</sup>Cork University Hospital

**P035: DISLOCATION OF BILATERAL TEMPOROMANDIBULAR JOINTS AFTER OCCIPITO-CERVICAL FUSION FOLLOWING ENDONASAL ENDOSCOPIC RESECTION OF CHORDOMA** - [Kent Tadokoro, MD](#); Carl Snyderman, MD; University of Pittsburgh Medical Center

**P037: 360 DEGREES OF SURGICAL APPROACHES TO THE MAXILLARY SINUS** - Natalia Rezende<sup>1</sup>; Carlos D. Pinheiro-Neto<sup>2</sup>; Maria Peris-Celda<sup>1</sup>; [Luciano Leonel](#)<sup>1</sup>; Garret Choby<sup>2</sup>; <sup>1</sup>Department of Neurologic Surgery, Mayo Clinic, Rochester, MN - USA; <sup>2</sup>Division of Rhinology and Skull Base Surgery, Department of Otolaryngology - Head & Neck Surgery, Mayo Clinic, Rochester, MN - USA

**P038: MICROSCOPE-ASSISTED SUPRAORBITAL KEYHOLE CRANIOTOMY FOR THE RESECTION OF LARGE OLFACTORY GROOVE MENINGIOMAS** - Lina Marengo Hillebrand, MD; [Michael A Bamimore](#); Paola Suarez Meade, MD; Krishnan Ravindran, MD; Kaisorn L Chaichana, MD; Mayo Clinic

**P039: MINIMALLY INVASIVE TRANS-EYELID ENDOSCOPIC ASSISTED APPROACH TO ANTERIOR AND MIDDLE CRANIAL FOSSA.** - M Mandel, MD, PhD; [R A C B Santiago, MD](#); B Ibrahim, MD; M Obrzut; B Adada, MD; H Borghei-Razavi, MD; Cleveland Clinic Florida

## Poster Listing (cont.)

**P040: ENDOSCOPIC ENDONASAL DECOMPRESSION OF THE HYPOGLOSSAL CANAL** - [Hanna N Algattas](#); Uma Ramaswamy, MD; Eric W Wang, MD; Carl H Snyderman, MD, MBA; Paul A Gardner, MD; Georgios A Zenonos, MD; University of Pittsburgh Medical Center

**P041: SPECULUM-ASSISTED ENDOSCOPIC TRANSNASAL TRANSSPHENOIDAL APPROACH TO THE SKULL BASE: A TECHNICAL NOTE WITH CASE ILLUSTRATION** - Dario A Marotta, BS<sup>1</sup>; Saman Farr, DO<sup>2</sup>; Stacey Podkovik, DO<sup>2</sup>; Ira Bowen, DO<sup>2</sup>; [James Brazdzionis, DO<sup>2</sup>](#); Jason Duong, DO<sup>2</sup>; Raed Sweiss, DO<sup>2</sup>; <sup>1</sup>Alabama College of Osteopathic Medicine, Dothan, Alabama; <sup>2</sup>Department of Neurosurgery, Riverside University Health System Medical Center, Moreno Valley, California

**P042: ENDOSCOPIC ENDONASAL VS. MICROSCOPIC SUBLABIAL TRANSSPHENOIDAL SURGERY FOR RATHKE'S CLEFT CYSTS** - [Emma C Celano, MD](#); Joseph Watson, MD; MedStar Georgetown Department of Neurosurgery

**P043: GARDNER'S TRIANGLE: SURGICAL ANATOMY AND RELEVANCE FOR ENDOSCOPIC ENDONASAL APPROACH TO THE PETROUS APEX AND PETROCLIVAL REGION** - [Martin B Coutinho da Silva, MD<sup>1</sup>](#); Vanessa Hernández-Hernández, MD, PhD<sup>1</sup>; Georgios A Zenonos, MD<sup>2</sup>; Eric W Wang<sup>3</sup>; Carl H Snyderman<sup>3</sup>; Paul A Gardner<sup>2</sup>; <sup>1</sup>Surgical Neuroanatomy Lab, Department of Neurological Surgery, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania, United States; <sup>2</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania, United States; <sup>3</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania, United States

**P044: METASTATIC ENDOMETRIAL CARCINOMA OF THE PARANASAL SINUSES WITH CRIBRIFORM PLATE INVOLVEMENT: A CASE REPORT** - [Evan Kominsky<sup>1</sup>](#); Ivan Filimonov<sup>2</sup>; Andrey Filimonov<sup>1</sup>; Todd Spock<sup>1</sup>; <sup>1</sup>Department of Otolaryngology-Head and Neck Surgery, Mount Sinai Hospital; <sup>2</sup>Rutgers University

**P045: STEP-BY-STEP ENDONASAL ENDOSCOPIC DISSECTION TO THE PTERYGOPALATINE FOSSA, PARAPHARYNGEAL SPACE AND INFRATEMPORAL FOSSA** - Natalia Rezende<sup>1</sup>; Maria Peris-Celda<sup>1</sup>; [Luciano Leone<sup>1</sup>](#); Carlos D Pinheiro-Neto<sup>2</sup>; <sup>1</sup>Department of Neurologic Surgery, Mayo Clinic, Rochester, MN - USA; <sup>2</sup>Division of Rhinology and Skull Base Surgery, Department of Otolaryngology - Head & Neck Surgery, Mayo Clinic, Rochester, MN - USA

**P046: CRANIAL AND TRANSSPHENOIDAL MANAGEMENT OF INTRASELLAR ARACHNOID CYST: A SINGLE OPERATOR CASE SERIES** - Aaron Brake; [Paige A Lundy, MD](#); Roukoz Chamoun, MD; The University of Kansas Medical Center

**P047: RATHKE'S CLEFT CYST IN SETTING OF COVID-19 INFECTION CAUSING ACUTE VISUAL DECOMPENSATION** - [Amar Miglani, MD](#); Naresh P Patel, MD; Brar K Tripti, MBBS; Devyani Lal, MD; Mayo Clinic Arizona

**P048: DEFINING THE CLIVAL RECESS SURGICAL CORRIDOR AND CLASSIFICATION SYSTEM FOR SELAR/ SUPRASELLAR PATHOLOGY** - [Nasser K Yaghi](#); David J Mazur-Hart, MD, MS; Ryan A Rimmer, MD; Aclan Dogan, MD; Mathew Geltzeiler, MD; Jeremy N Ciporen, MD; Oregon Health & Science University

**P051: CHRONIC INTRAOSSEOUS ORGANIZING HEMATOMA OF THE CALVARIUM IN THE SETTING OF COAGULOPATHY: REPORT OF A CASE AND REVIEW OF THE LITERATURE** - [Scott A McCraney, MS](#); Mitchell D Kilgore, BS; Mansour Mathkour, MD, MSc; Tyler Scullen, MD; Cuong J Bui, MD; Department of Neurosurgery, Tulane Medical Center, New Orleans, LA, USA

**P052: PRIMARY CHONDROSARCOMAS OF THE SKULL BASE: A SYSTEMATIC REVIEW** - [Paolo Palmisciano, MD](#); Ali S Haider, BS<sup>2</sup>; Mohammadmahdi Sabahi, MD, MPH<sup>3</sup>; Chibueze D Nwagwu, MSc<sup>4</sup>; Othman Bin Alamer, MBBS<sup>5</sup>; Gianluca Scalia, MD<sup>6</sup>; Giuseppe E Umana, MD, MSc<sup>1</sup>; Aaron A Cohen-Gadol, MD, MSc, MBA<sup>7</sup>; Tarek Y El Ahmadieh, MD<sup>8</sup>; Kenny Yu, MBBS, PhD<sup>8</sup>; Omar Pathmanaban, MBBS, PhD<sup>9</sup>; <sup>1</sup>Department of Neurosurgery, Trauma Center, Gamma Knife Center, Cannizzaro Hospital, Catania, Italy; <sup>2</sup>Texas A&M University College of Medicine, Houston, TX, USA; <sup>3</sup>Neurosurgery Research Group (NRG), Student Research Committee, Hamadan University of Medical Sciences, Hamadan, Iran; <sup>4</sup>Emory University School of Medicine, Atlanta, GE, USA; <sup>5</sup>King Abdullah International Medical Research Center, Riyadh, Saudi Arabia; <sup>6</sup>Department of Neurosurgery, Highly Specialized Hospital and of National Importance "Garibaldi", Catania, Italy; <sup>7</sup>Department of Neurological Surgery, Indiana University School of Medicine, Indianapolis, IN; <sup>8</sup>Department of Neurosurgery and Brain Metastasis Center, Memorial Sloan Kettering Cancer Center, New York, NY; <sup>9</sup>Department of Neurosurgery, Salford Royal Hospital, Salford, UK

**P053: LOOKING AT THE EYE THROUGH AN IMAGING LENS - IMAGING CHARACTERISTICS OF ORBITAL LESIONS FOR THE SKULL BASE SURGEON** - [Ann K Jay, MD](#); Shankarapryan Sivanushanthan; Harry Tsou Jr.; Rashmi S Thakkar, MD; Georgetown University School of Medicine

## Poster Listing (cont.)

**P054: POSTERIOR SKULL BASE IMAGING: ANATOMY AND PATHOLOGY FOR THE SKULL BASE SURGEON** - Zubay Syed, MS<sup>1</sup>; Ann K Jay, MD<sup>2</sup>; <sup>1</sup>Georgetown University School of Medicine; <sup>2</sup>MedStar Georgetown University Hospital, Department of Radiology

**P055: PRIMARY PRESENTATION OF NEUROSARCOIDOSIS AS A PITUITARY MASS WITH SINONASAL INVOLVEMENT** - Alexander Bjorling<sup>1</sup>; Ruth Birbe, MD<sup>2</sup>; Alan R Turtz, MD<sup>3</sup>; Nadeem R Kolia, MD<sup>2</sup>; <sup>1</sup>Cooper Medical School of Rowan University; <sup>2</sup>Cooper University Health Care; <sup>3</sup>Department of Neurological Surgery, Cooper University Hospital

**P056: SKULL BASE INFECTIONS: PEARLS AND PITFALLS** - Nelya Ebadirad, MD, Dept of NeuroRadiology<sup>1</sup>; Alexandra Eckert<sup>2</sup>; Ann K Jay, MD<sup>1</sup>; <sup>1</sup>Medstar Georgetown Health System; <sup>2</sup>Georgetown University School of Medicine

**P057: CHANGING SPECTRUM OF INVASIVE FUNGAL INFECTIONS OF ANTERIOR SKULL BASE** - Govind Bhuskute, MS, DNB; Amit Kumar Keshri, MS; Arulalan Mathialagan, MS, DNB; Abhishek Dubey, MS; Surendra Baghel, MS; Neha Singh, MS, DNB; Awadhesh Kumar Jaiswal, Mch; Arun Srivastava, Mch; Ravisankar Manogaran, MS, DNB; Sanjay Behari, Mch; Raj Kumar, Mch; SGPGIMS, Lucknow

**P058: MYRIAD WAYS TO SKIN THE NERVE: PRELIMINARY EXPERIENCE WITH A SIDE-CUTTING MECHANICAL ASPIRATOR FOR VESTIBULAR SCHWANNOMA RESECTION** - Dimitri Benner, BS; Shawn M Stevens, MD; Chris S Graffeo, MD; Malika Bhargava, MD; Jocelyn R Robles; Lea Alhilali, MD; Komal Naeem, MD; Michael T Lawton, MD; Randall W Porter, MD; Barrow Neurological Institute

**P059: PRACTICALITY OF PRE-PRINTED POLYETHERETHERKETONE (PEEK) IMPLANTS FOR CRANIOPLASTY FOLLOWING SPHENOID WING MASS LESION RESECTION** - Samir Kashyap, DO<sup>1</sup>; Stacey Podkovik, DO<sup>1</sup>; Saman Farr, DO<sup>1</sup>; James Brazdzionis, DO<sup>1</sup>; Gohar Majeed, DO<sup>1</sup>; Dario A Marotta, BS<sup>2</sup>; Raed Sweiss, DO<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Riverside University Health System Medical Center, Moreno Valley, California; <sup>2</sup>Alabama College of Osteopathic Medicine, Dothan, AL

**P061: COMBINED MIDDLE CRANIAL FOSSA/TRANSMASTOID/RETROSIGMOID RESECTION OF FACIAL NERVE SCHWANNOMA WITH HEARING PRESERVATION** - Edward Doyle, MD<sup>1</sup>; Scott Shapiro, MD<sup>2</sup>; Dylan Clapp<sup>3</sup>; Ryan Collar, MD<sup>1</sup>; Mario Zuccarello, MD<sup>1</sup>; Ravi N Samy, MD<sup>1</sup>; <sup>1</sup>University of Cincinnati; <sup>2</sup>Rutgers University; <sup>3</sup>Ohio State University

**P062: UNIQUE FEATURE OF TRANSMANDIBULARY APPROACH - AS A PUZZLE OR LEGO PUZZLE APPROACHES** - Jan Hemza, MD, PhD, et, PhD, MPA; Faculty Hospital at saint Ann, Dpt. of Neurosurgery

**P063: TRANS-LAMINA TERMINALIS APPROACH FOR RESECTION OF A SUPRASellar EPIDERMOID CYST WITH THIRD VENTRICULAR EXTENSION** - Christopher S Hong; Sacit Bulent Omay; Yale University

**P064: FINE TUNING FINE NEEDLE ASPIRATION BIOPSY** - Steven A Newman, MD; University of Virginia

**P065: INTRAOPERATIVE ELECTRICAL STIMULATION FOR TRAUMATIC FACIAL NERVE PARALYSIS** - Monique North, BS<sup>1</sup>; Jeffrey Weishaar, MD<sup>2</sup>; John P Leonetti, MD<sup>2</sup>; <sup>1</sup>Loyola University Chicago Stritch School of Medicine; <sup>2</sup>Loyola University Health System

**P066: USE OF BONESCALPEL ULTRASONIC BONE DISSECTOR IN ANTERIOR CLINOIDECTOMY AND POSTERIOR FOSSA SURGERY: TECHNICAL NOTE** - Paolo Palmisciano, MD<sup>1</sup>; Gianluca Scalia, MD<sup>2</sup>; Salvatore Cicero, MD<sup>1</sup>; Angelo Spitaleri, MD<sup>1</sup>; Marco Fricia, MD<sup>1</sup>; Santino O Tomasi, MD, MSc<sup>3</sup>; Giovanni F Nicoletti, MD<sup>2</sup>; Massimiliano Visocchi, MD, PhD<sup>4</sup>; Giuseppe E Umana, MD, MSc<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Cannizzaro Hospital, Catania, Italy; <sup>2</sup>Department of Neurosurgery, Highly Specialized Hospital and of National Importance "Garibaldi", Catania, Italy; <sup>3</sup>Department of Neurosurgery, Christian-Doppler-Klinik, Paracelsus Private Medical University, Salzburg, Austria; <sup>4</sup>Craniovertebral Junction Operative Unit and Master CVJ Surgical Approach Research Center, Institute of Neurosurgery, Policlinic "A. Gemelli", Catholic University, Rome, Italy

**P067: WHITE LIGHT AND NEAR-INFRARED FLUORESCENCE OVERLAY AND IMAGE FUSION ENHANCES SURGICAL WORKFLOW IN ENDOSCOPIC ENDONASAL SURGERY** - Karam Paul Asmar, MD; Vera Vigo, MD; Maximiliano A Nunez, MD; Zara M Patel; Peter H Hwang, MD; Jayakar Nayak, MD; Juan C Fernandez-Miranda; Stanford Health Care

**P068: APPLICATION OF INDOCYANINE GREEN VIDEOANGIOGRAPHY FOR CEREBELLAR HEMANGIOBLASTOMA SURGERY: VALUABLE ADJUNCTIVE SURGICAL TOOL** - Joonho Byun; Chang Ki Hong; Asan Medical Center



## Poster Listing (cont.)

**P070: PRIMARY CHONDROSARCOMA OF THE JUGULAR FORAMEN: APPROACH SELECTION AND REVIEW OF LITERATURE** - [Mark Frilling, MD](#); Shawn Li, MD; Nicholas Bambakidis, MD; Nauman Manzoor, MD; Case Western Reserve University/University Hospitals

**P071: THE ROLE OF PROPHYLACTIC LEVETIRACETAM FOR PATIENTS WITH BRAIN TUMORS TREATED IN A CNS MULTIDISCIPLINARY CLINIC FOR RADIATION ONCOLOGY AND NEUROSURGERY (RADIANS) AND A REVIEW OF LITERATURE** - Brandi W Pang<sup>1</sup>; Samantha Bowen<sup>1</sup>; Rohi Gheewala<sup>1</sup>; Alexandra Hoffman<sup>1</sup>; Brandon Lucke-Wold, MD, PhD<sup>2</sup>; [Wencesley Paez, MD](#)<sup>1</sup>; Timur Mitin, MD, PhD<sup>1</sup>; Jeremy N Ciporen, MD<sup>1</sup>; <sup>1</sup>Oregon Health & Science University; <sup>2</sup>University of Florida

**P072: CLINICAL OUTCOMES FOLLOWING INTRAVENTRICULAR MENINGIOMA RESECTION: A LONGITUDINAL SINGLE-CENTER EXPERIENCE** - [Daniel D Cummins, BS](#)<sup>1</sup>; Ramin A Morshed, MD<sup>1</sup>; John Andrews, MD<sup>1</sup>; Michael W McDermott, MD<sup>2</sup>; Philip V Theodosopoulos, MD, PhD<sup>1</sup>; <sup>1</sup>UCSF; <sup>2</sup>Miami Neuroscience Institute

**P073: FUNCTIONAL OUTCOMES AFTER TREATMENT OF INTRACRANIAL MENINGIOMAS IN NF2 PATIENTS** - [Precious C Oyem, BA](#)<sup>1</sup>; Erion De Andrade, MD<sup>2</sup>; Pranay Soni, MD<sup>2</sup>; Derrick Obiri-Yeboah, BS<sup>1</sup>; Roger Murayi, MD<sup>2</sup>; Diana Lopez, BS<sup>1</sup>; Varun R Kshetty, MD<sup>2</sup>; Pablo F Recinos, MD<sup>2</sup>; <sup>1</sup>Cleveland Clinic Lerner College of Medicine; <sup>2</sup>Cleveland Clinic Neurological Institute

**P074: RADIOGRAPHIC COMPARISON OF SECRETORY MENINGIOMAS AND WHO GRADE 2 MENINGIOMAS: A RETROSPECTIVE COHORT ANALYSIS** - [Megh M Trivedi, MD](#); Arbaz A Momin, MS; Jenny Shao, MD; Pranay Soni, MD; Jonathan Lee, MD; Pablo F Recinos, MD; Varun R Kshetty, MD; Cleveland Clinic

**P077: FAR LATERAL APPROACH FOR MICROVASCULAR DECOMPRESSION OF ECTATIC VERTEBRAL ARTERY ASSOCIATED MEDULLARY COMPRESSION** - [Jorrdan N Bissell, BS](#); Vadim Gospodarev, MD; Kenneth M De Los Reyes, MD; Promod Pillai, MBBS, MCh; Loma Linda University School of Medicine

**P078: LATERAL SPREAD RESPONSE DOES NOT PREDICT LONG-TERM OUTCOME AFTER MICROVASCULAR DECOMPRESSION FOR HEMIFACIAL SPASM** - [Ahmed Helal, MBBCh, MSc](#); Christopher Graffeo, MD, MSc; Lucas Carlstrom, MD, PhD; Fredric B Meyer, MD; Bruce Pollock; Michael J Link; Mayo Clinic, Rochester

**P080: ESTABLISHING A FORMAL PITUITARY CENTER OF EXCELLENCE: FROM CRITERIA TO IMPLEMENTATION** - [Hanna N Algattas, MD](#); Pouneh Fazeli, MD; Eric W Wang, MD; Carl H Snyderman, MD, MBA; Georgios A Zenonos, MD; Paul A Gardner, MD; University of Pittsburgh Medical Center

**P081: SMARCB1 AND RB1 GENE: NOVEL MUTATIONS IN NEUROENDOCRINE TUMORS OF SINONASAL CAVITY** - [Chandala Chitguppi, MD](#)<sup>1</sup>; Stacey Gargano, MD<sup>1</sup>; Garret Choby<sup>2</sup>; Christopher M Low<sup>2</sup>; Kyriakos Chatzopoulos<sup>2</sup>; David J Schembri Wismayer<sup>2</sup>; Glen D'Souza, MD<sup>1</sup>; Tory McKnight<sup>1</sup>; Theodore Klug<sup>1</sup>; Sean Parsell<sup>1</sup>; Blair Barton<sup>1</sup>; Voichita BarAd<sup>1</sup>; Jennifer Johnson<sup>1</sup>; Elina Toskala<sup>1</sup>; Mindy Rabinowitz<sup>1</sup>; Marc Rosen<sup>1</sup>; Gurston Nyquist<sup>1</sup>; <sup>1</sup>Thomas Jefferson University Hospital, Philadelphia; <sup>2</sup>Mayo Clinic, Rochester, MN

**P082: THE PRE-CUNEAL, INTERHEMISPHERIC, TRANS-TENTORIAL CORRIDOR TO THE PINEAL REGION: A STEP-BY-STEP DISSECTION AND TWO CASE REPORTS** - [Yohan Alexander, BA](#); Luciano Leonel, PhD; Giuseppe Lanzino, MD; Maria Peris Celda, MD, PhD; Mayo Clinic

**P083: MANAGEMENT OF EPIDURAL HEMATOMAS OF THE POSTERIOR CRANIAL FOSSA** - Michael A Foster<sup>1</sup>; Michael R Collins, MD<sup>2</sup>; Thomas M Wertin, MD<sup>3</sup>; Adrienne R Azurdia, MD<sup>4</sup>; Salvatore C Lettieri, MD<sup>5</sup>; [Iman Feiz-Erfan, MD](#)<sup>6</sup>; <sup>1</sup>University of Arizona, College of Science, Tucson, Arizona; <sup>2</sup>Department of Radiology, Valleywise Health Medical Center, Phoenix, Arizona, USA; <sup>3</sup>Division of Trauma, Valleywise Health Medical Center, Phoenix, Arizona, USA; <sup>4</sup>Department of Emergency Medicine, Valleywise Health Medical Center, Phoenix, Arizona, USA; <sup>5</sup>Division of Plastic Surgery, Mayo Clinic, Phoenix, Arizona, USA; <sup>6</sup>Division of Neurosurgery, Valleywise Health Medical Center, Phoenix, Arizona, USA

**P084: TREATMENT OF COALESCENT MASTOIDITIS WITH POSTERIOR FOSSA EPIDURAL ABSCESS VIA A TRANSMASTOID-RETROSIGMOID APPROACH - A CASE REPORT** - [Wesley A Greene, MD](#); Alexander G Bien, MD, FACS; Vikram Ramjee, MD; Avigeet Gupta, MD; University of Oklahoma College of Medicine Department of Otolaryngology - Head and Neck Surgery

## Poster Listing (cont.)

**P087: MICROVASCULAR FREE TISSUE TRANSFER FOR SKULL BASE OSTEORADIONECROSIS: A NOVEL APPROACH IN THE ENDOSCOPIC ERA** - [Satyan B Sreenath, MD<sup>1</sup>](#); Kevin Grafmiller, MD<sup>2</sup>; Dennis M Tang, MD<sup>3</sup>; Scott Roof, MD<sup>4</sup>; Troy D Woodard, MD<sup>2</sup>; Varun R Kshetry, MD<sup>5</sup>; Pablo F Recinos, MD<sup>5</sup>; Raj Sindwani, MD<sup>2</sup>; Michael A Fritz, MD<sup>2</sup>; <sup>1</sup>Indiana University, Department of Otolaryngology--Head and Neck Surgery; <sup>2</sup>Cleveland Clinic, Head and Neck Institute; <sup>3</sup>Cedars Sinai Medical Center, Department of Otolaryngology--Head and Neck Surgery; <sup>4</sup>Icahn School of Medicine at Mt. Sinai, Department of Otolaryngology--Head and Neck Surgery; <sup>5</sup>Cleveland Clinic, Department of Neurological Surgery

**P088: THE ROLE OF BEVACIZUMAB FOR RECALCITRANT INTRACRANIAL MENINGIOMAS: A SINGLE INSTITUTION'S EXPERIENCE AND A SYSTEMATIC REVIEW OF THE LITERATURE** - [A. Yohan Alexander, Mr](#); Chiduziem Onyedimma; Archis R Bhandarkar; Yagiz U Yolcu, MD; Mohamad Bydon, MD; Michael J Link, MD; Mayo Clinic

**P089: SINONASAL MUCOSAL MELANOMA RESPONSE TO IMMUNOTHERAPY: SURGICAL RESECTION OF NECROSIS** - [Sarah M Dermody, MD](#); Ilana P Fischer, MD; Scott A McLean, MD, PhD; Michigan Medicine - University of Michigan

**P091: UNUSUAL MANIFESTATION OF BURKITT'S LYMPHOMA INVOLVING THE SKULL BASE** - [Steven A. Newman, MD](#); University of Virginia

**P092: METASTATIC EWING SARCOMA INVOLVING BILATERAL ORBITS DIAGNOSED IN INFANCY** - [Kelly L. Ruland, MS](#); Steven A Newman, MD; University of Virginia

**P093: ENDOSCOPIC ENDONASAL APPROACH TO INTRACONAL ANAPLASTIC SOLITARY FIBROUS TUMOR OF THE ORBIT** - [Dhruv Sharma<sup>1</sup>](#); Kyle Davis, BS<sup>2</sup>; Ji-Kwan Park<sup>3</sup>; Jonathan Y Ting, MD, MBA<sup>1</sup>; HuiBae Lee, MD<sup>3</sup>; <sup>1</sup>Indiana University Department of Otolaryngology - Head and Neck Surgery; <sup>2</sup>Indiana University School of Medicine; <sup>3</sup>Indiana University Department of Ophthalmology

**P094: THE UTILITY OF A "SECOND LOOK" DEBRIDEMENT FOLLOWING ENDONASAL SKULL BASE SURGERY IN THE PEDIATRIC POPULATION** - [Michael T Chang, MD<sup>1</sup>](#); Alice E Huang<sup>1</sup>; Jennifer Quon, MD<sup>2</sup>; Juan C Fernandez-Miranda, MD<sup>2</sup>; Jayakar V Nayak, MD, PhD<sup>1</sup>; Peter H Hwang<sup>1</sup>; Zara M Patel<sup>1</sup>; <sup>1</sup>Stanford University School of Medicine, Department of Otolaryngology - Head & Neck Surgery; <sup>2</sup>Stanford University School of Medicine, Department of Neurosurgery

**P095: CYSTIC FIBROUS DYSPLASIA OF THE PEDIATRIC TEMPORAL BONE: A RARE, INSIDIOUS CAUSE OF MIDDLE AND POSTERIOR CRANIAL FOSSA DEFECTS** - [Neal M Jackson<sup>1</sup>](#); Jerome Volk<sup>2</sup>; <sup>1</sup>Tulane University; <sup>2</sup>Louisiana State University- New Orleans

**P096: PEDIATRIC ODONTOGENIC MYXOMA OF THE MAXILLA: A CASE REPORT AND REVIEW OF THE LITERATURE** - Miryam Makutonin, BS; Keonho A Kong, MD; Brian Thorp, MD; Charles S Ebert Jr; Brent Senior, MD; Adam J Kimple, MD; [Mark Chaskes, MD, MBA](#); University of North Carolina Hospitals

**P097: ENDOSCOPIC TRANSORAL APPROACH TO BIOPSY OF THE CERVICAL SPINE IN DIAGNOSIS OF CHRONIC RECURRENT MULTIFOCAL OSTEOMYELITIS (CRMO)** - [Cheyenne Roohani, MD<sup>1</sup>](#); Steven Andreoli, MD<sup>2</sup>; Mark Toney, MD<sup>2</sup>; Nathan Ranalli, MD<sup>3</sup>; <sup>1</sup>University of South Florida; <sup>2</sup>Nemours Children Hospital; <sup>3</sup>University of Florida Jacksonville

**P098: ANTERIOR SKULL BASE SURGERY FOR MALIGNANCY IN THE PEDIATRIC POPULATION - OUTCOMES OF A VARIABLE BEAST** - Robbie Woods; Joseph Lopez; Conall Fitzgerald; Cristina Valero; Dauren Adilbay; Jennifer Cracchiolo; Snehal Patel; Jatin P Shah; Ian Ganly; Marc A Cohen; Head and Neck Service, Department of Surgery, Memorial Sloan Kettering Cancer Center

**P099: ENDOSCOPIC ENDONASAL RESECTION OF NONFUNCTIONAL PITUITARY ADENOMAS: COMPREHENSIVE CLINICAL OUTCOMES AND THE RADIOGRAPHIC FINDINGS ASSOCIATED WITH GROSS TOTAL RESECTION** - [Hussein M Abdallah<sup>1</sup>](#); Zachary C Gersey, MD, MS<sup>2</sup>; Zane Gray<sup>1</sup>; Laura Le<sup>1</sup>; Sarah Meyers<sup>1</sup>; Keerthi N Arani, MD<sup>3</sup>; Gabrielle R Bonhomme, MD<sup>4</sup>; Sonya T Stefk<sup>4</sup>; Pouneh K Fazeli, MD<sup>5</sup>; Hussain Mahmud, MD<sup>5</sup>; Carl Snyderman, MD, MBA<sup>6</sup>; Eric Wang, MD<sup>6</sup>; Paul A Gardner<sup>2</sup>; Georgios A Zenonos<sup>2</sup>; <sup>1</sup>University of Pittsburgh School of Medicine; <sup>2</sup>University of Pittsburgh Medical Center, Department of Neurological Surgery; <sup>3</sup>University of Pittsburgh Medical Center, Department of Radiology; <sup>4</sup>University of Pittsburgh Medical Center, Department of Ophthalmology; <sup>5</sup>University of Pittsburgh Medical Center, Department of Endocrinology; <sup>6</sup>University of Pittsburgh Medical Center, Department of Otolaryngology

**P100: HIGH GRADE ECTOPIC PITUITARY ADENOMA: A CASE REPORT AND REVIEW OF LITERATURE** - [Cassidy Anderson, BS](#); Abigail Funari, BS; Nadeem Akbar, MD; Patrick Colley, MD; Vijay Agarwal, MD; Howard Moskowitz, MD, PhD; Albert Einstein College of Medicine



## Poster Listing (cont.)

**P101: THE OUTCOME OF SUPERGIANT PITUITARY TUMORS FOLLOWING ENDONASAL VS. TRANSCRANIAL APPROACHES** - [Sivashanmugam Dhandapani](#); Sushant Sahoo; Rajesh Chhabra; Pravin Salunke; Apinderpreet Singh; PGIMER, Chandigarh, India

**P102: INTRAOPERATIVE ALCOHOLIZATION OF THE PITUITARY GLAND DOES NOT REDUCE THE RECURRENCE RATE OF GROWTH HORMONE SECRETING PITUITARY ADENOMAS** - [Amarbir S Gill](#), MD; Jorgen Sumsion, BS; Jeremiah A Alt, MD, PhD; Michael Karsy, MD, PhD; William T Couldwell, MD, PhD; Sarah T Menacho, MD; University of Utah

**P103: PITUITARY APOPLEXY WITH SUBARACHNOID HEMORRHAGE: CASE PRESENTATION AND LITERATURE REVIEW** - Daniel Giraldo Herrera, MD; [Ann K Jay](#), MD; MedStar Georgetown University Hospital

**P104: HEALTHCARE DISPARITIES IN TRANSSPHENOIDAL SURGERY FOR PITUITARY TUMORS: AN EXPERIENCE FROM NEIGHBORING URBAN PUBLIC AND PRIVATE HOSPITALS** - [Alex Gordon](#), BS; Yosef Dastagirzada, MD; Jamie Schlacter, BS; Sonal Mehta, MD; Nidhi Agrawal, MD; John Golfinos, MD; Richard Lebowitz, MD; Donato Pacione, MD; Seth Lieberman; NYU Grossman School of Medicine

**P105: NOT ALL SELLAR LESIONS ARE ADENOMAS!** - Jai Won Jung, BS; Chris Lu, MD; [Ann K Jay](#), MD; Rashmi S Thakkar, MD; Georgetown University School of Medicine

**P106: OPTICAL COHERENCE TOMOGRAPHY (OCT) IN PITUITARY AND SUPRASellar LESIONS - SYSTEMATIC REVIEW/META-ANALYSIS** - [Seth S Jeong](#), BA<sup>1</sup>; Abigail Funari, BA<sup>2</sup>; Vijay Agarwal, MD<sup>2</sup>; <sup>1</sup>Medical University of South Carolina; <sup>2</sup>Albert Einstein College of Medicine

**P107: PREDICTORS OF POSTOPERATIVE CEREBROSPINAL FLUID LEAK AND INFECTION AFTER ENDOSCOPIC ENDONASAL APPROACH FOR SELLAR AND SUPRASellar MASSES** - [Brandon R Laing](#), MD; Emily Morris, MD; Gillian Harrison, MD; Nathan Zwagerman, MD; Medical College of Wisconsin

**P108: BIOCHEMICALLY NON-FUNCTIONING MIXED PITUITARY ADENOMA-GANGLIOCYTOMA: CASE REPORT AND REVIEW OF THE LITERATURE.** - [Paul McBride](#), MD; Robert Macaulay, MD; Krupal Patel, MD; Andre Beer-Furlan, MD, PhD; Moffitt Cancer Center

**P109: ANALYSIS OF THE ENDOSCOPE'S IMPACT ON A SINGLE NEUROSURGEON'S OUTCOMES IN TRANS-NASAL RESECTION OF PITUITARY ADENOMAS** - [Arvind Mohan](#), MD; Clare Grady; Sam Malnik; Brian Lobo, MD; Steven Roper, MD; University of Florida

**P110: RECURRENT ASEPTIC MENINGITIS IN THE SETTING OF SECONDARY HYPOPHYSITIS FROM AN ENLARGING RATHKE'S CLEFT CYST. A CASE REPORT AND LITERATURE REVIEW.** - Megh M Trivedi, MD<sup>1</sup>; [Roger Murayi](#), MD<sup>1</sup>; Joao P Almeida, MD<sup>2</sup>; Gabrielle Yeane, MD<sup>3</sup>; Carlos Isada, MD<sup>4</sup>; Varun R Kshetry, MD<sup>1</sup>; <sup>1</sup>Department of Neurological Surgery, Rosa Ella Burkhardt Brain Tumor & Neuro-Oncology Center, Cleveland, OH; <sup>2</sup>Division of Neurosurgery, Toronto Western Hospital, University of Toronto, Toronto, ON, Canada; <sup>3</sup>Department of Pathology, Cleveland Clinic, Cleveland, OH; <sup>4</sup>Department of Infectious Disease, Cleveland Clinic, Cleveland, OH

**P111: COMPARATIVE ANALYSIS OF THE EARLY AND LATE ENDOSCOPIC ENDONASAL SURGICAL EXPERIENCE IN THE TREATMENT OF PITUITARY ADENOMA.** - [Bakhtiyar U Pashaev](#), MD<sup>1</sup>; Dmitriy V Bochkarev, MD<sup>1</sup>; Valeriy I Danilov, MD<sup>2</sup>; Andrey G Alekseev, PhD<sup>1</sup>; Gulnar R Vagapova, MD<sup>3</sup>; Arseniy Pichugin, PhD<sup>1</sup>; Nikita V Mokhov, PhD<sup>1</sup>; Alfiya A Gubaeva, MD<sup>1</sup>; Elina S Shakhbasova, MD<sup>1</sup>; Liliya R Khisanova, MD<sup>1</sup>; Marina N Bykova, MD<sup>1</sup>; <sup>1</sup>Interregional Clinical Diagnostic Center; <sup>2</sup>Kazan State Medical University; <sup>3</sup>Kazan State Medical Academy

**P112: SILENT CORTICOTROPH AND SOMATOTROPH DOUBLE PITUITARY ADENOMA: A CASE REPORT AND REVIEW OF LITERATURE** - [Isabella L Pecorari](#), BS<sup>1,2</sup>; Lakshmi Mahali, MD<sup>3,4</sup>; Abigail Funari, BS<sup>1,2</sup>; Roger Fecher, MD, PhD<sup>5,6</sup>; Cassidy L Anderson, BS<sup>7</sup>; Nisha Suda, MD, MHA<sup>3,4</sup>; Vijay Agarwal, MD<sup>1,2</sup>; <sup>1</sup>Department of Neurological Surgery, Albert Einstein College of Medicine, Bronx, NY, USA; <sup>2</sup>Department of Neurological Surgery Montefiore Medical Center, Bronx, NY, USA; <sup>3</sup>Department of Endocrinology, Albert Einstein College of Medicine, Bronx, NY, USA; <sup>4</sup>Department of Endocrinology Montefiore Medical Center, Bronx, NY, USA; <sup>5</sup>Department of Anatomic and Clinical Pathology, Albert Einstein College of Medicine, Bronx, NY, USA; <sup>6</sup>Department of Anatomic and Clinical Pathology, Montefiore Medical Center, Bronx, NY, USA; <sup>7</sup>Department of Otolaryngological Surgery, Albert Einstein College of Medicine, Bronx, NY

## Poster Listing (cont.)

**P113: CLINICAL IMPLICATION OF THE PREOPERATIVE PITUITARY GLAND ESTIMATED LOCATION IN NON FUNCTIONAL PITUITARY ADENOMA. A PROSPECTIVE STUDY.** - Juan M Revuelta Barbero, MD, PhD<sup>1</sup>; Edoardo Porto, MD<sup>1</sup>; Eduardo J Medina, BS<sup>1</sup>; Miguel A Mayol del Valle, MD<sup>1</sup>; David P Bray, MD<sup>1</sup>; Jordan A Malenke, MD<sup>2</sup>; Emily Barrow, MD<sup>2</sup>; Clementino A Solares<sup>2</sup>; Gustavo Pradilla<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Emory University, Atlanta, Georgia, USA; <sup>2</sup>Department of Otolaryngology Head and Neck Surgery, Emory University, Atlanta, Georgia, USA

**P114: PITUITARY APOPLEXY AS A SIMULATOR OF ACUTE INFECTIOUS MENINGITIS: A CASE REPORT.** - Cristian Naudy, MD<sup>1</sup>; Francisca Montoya, MD<sup>1</sup>; Matias Gomez, MD<sup>1</sup>; Claudio Henríquez, MD<sup>2</sup>; Pablo Peña, MD<sup>1</sup>; Andres F Rojas, MD<sup>1</sup>; <sup>1</sup>Instituto de neurocirugía de Chile; <sup>2</sup>Hospital del Salvador

**P115: EVALUATION OF A PERIOPERATIVE PROTOCOL WITH GLUCOCORTICOIDS AFTER PITUITARY SURGERY** - Idoya Zazpe; Ana Irigaray; Hospital of Navarre

**P116: THE LOOK ON YOUR FACE: DESCRIPTIVE OVERVIEW AND CLINICAL EXPERIENCES ASSOCIATED WITH MULTIDISCIPLINARY FACIAL REANIMATION CONFERENCE** - Dimitri Benner, BS; Christopher S Graffeo, MD, MS; Malika Barghava, MD; Michael T Lawton, MD; Shawn M Stevens, MD; Randall W Porter, MD; Barrow Neurological Institute

**P117: A REVIEW OF POPULAR NASAL IRRIGATION SYSTEMS** - Garrett A Berk, BS<sup>1</sup>; Abdullah Zeatoun, MD<sup>2</sup>; Keonho A Kong, MD<sup>2</sup>; Mark B Chaskes, MD, MBA<sup>2</sup>; Brent A Senior, MD, FACS, FARS<sup>2</sup>; Charles S Ebert Jr., MD, MPH, FARS, FA<sup>2</sup>; Adam J Kimple, MD, PhD, FACS, FARS<sup>2</sup>; <sup>1</sup>Brody School of Medicine at East Carolina University; <sup>2</sup>University of North Carolina at Chapel Hill

**P118: THE IMPACT OF TYPE II DIABETES MELLITUS ON SINONASAL SYMPTOMS AFTER RESECTION OF INVERTED PAPILLOMA** - Kathleen M Davin, BS<sup>1</sup>; Mandy K Salmon, BS<sup>1</sup>; Auddie M Sweis, MD<sup>2</sup>; Siddhant Tripathi, BS<sup>3</sup>; Heather Ungerer, BA<sup>4</sup>; Tran B Locke, MD<sup>5</sup>; Aman Prasad, BS<sup>1</sup>; Elizabeth M Stevens<sup>6</sup>; James N Palmer, MD<sup>7</sup>; Michael A Kohanski, MD<sup>7</sup>; Nithin D Adappa, MD<sup>7</sup>; <sup>1</sup>University of Pennsylvania, Perelman School of Medicine; <sup>2</sup>Division of Otolaryngology (ENT) - Head and Neck Surgery, NorthShore University Health System; <sup>3</sup>University of Cincinnati College of Medicine; <sup>4</sup>Drexel University College of Medicine; <sup>5</sup>Department of Otolaryngology - Head and Neck Surgery, Baylor College of Medicine; <sup>6</sup>University of Copenhagen; <sup>7</sup>Department of Otorhinolaryngology- Head and Neck Surgery, University of Pennsylvania

**P119: UTILITY OF STEROID NASAL IRRIGATION AFTER SURGICAL RESECTION FOR INVERTED PAPILLOMA** - Mandy K Salmon, BS<sup>1</sup>; Auddie M Sweis, MD<sup>2</sup>; Siddhant Tripathi, BS<sup>3</sup>; Tran B Locke, MD<sup>4</sup>; Aman Prasad, BS<sup>1</sup>; Elizabeth M Stevens, MD<sup>5</sup>; Heather Ungerer, BA<sup>6</sup>; Kathleen M Davin, BA<sup>1</sup>; James N Palmer, MD<sup>1</sup>; Michael A Kohanski, MD<sup>1</sup>; Nithin D Adappa, MD<sup>1</sup>; <sup>1</sup>University of Pennsylvania; <sup>2</sup>NorthShore University Health System; <sup>3</sup>University of Cincinnati; <sup>4</sup>Baylor College of Medicine; <sup>5</sup>Copenhagen University Hospital; <sup>6</sup>Drexel University

**P120: SPHENOPALATINE GANGLION BLOCK AND RADIOFREQUENCY IN POST-TRAUMATIC BILATERAL FACIAL NEUROPATHY. A CASE REPORT.** - Emmanuel Hernández-Ruiz; Aarón Giovanni Munguía-Rodríguez; Adriana Fernanda Segura-Zenón; Yael Rodrigo Torres-Torres; Octavio Carranza-Rentería; Mauro Alberto Segura-Lozano; Neurología Segura Medical Center. Hospital Angeles Morelia. Morelia, Michoacán, México.

**P121: 20 YEAR FOLLOW UP OF 52 PATIENTS WITH ADVANCED TUMORS OF THE ANTERIOR SKULL BASE TREATED WITH INTRAOPERATIVE RADIOTHERAPY** - Michael Kopp, MD; Gerd Fastner, Prof; Christoph Gaisberger, DiplIng; Felix Sedlmayer, Prof; University Clinic for Radiotherapy and Radio-Oncology Salzburger Landeskliniken

**P122: HIGH-GRADE TRANSFORMATION OF LOW-GRADE BIPHENOTYPIC SINONASAL SARCOMA: A MORPHOLOGICAL, IMMUNOHISTOCHEMICAL AND MOLECULAR STUDY** - Diana Bell, MD<sup>1</sup>; Jack Phan, MD<sup>2</sup>; Franco DeMonte, MD<sup>2</sup>; Ehab Y Hanna, MD<sup>2</sup>; <sup>1</sup>City of Hope Medical Center; <sup>2</sup>MD Anderson Cancer Center

**P123: PRIMARY INTRACRANIAL LEIOMYOSARCOMA INVOLVING THE FRONTAL SINUS AND ETHMOID AIR CELLS: CASE REPORT AND LITERATURE REVIEW** - Hannah Choi, MD; Jordan N Bissell, BS; Vadim Gospodarev, MD; Ravi Raghavan, MD; Miguel A Lopez-Gonzalez, MD; Loma Linda University School of Medicine

**P124: PROGNOSIS OF SINONASAL SQUAMOUS CELL CARCINOMA BY SUBSITE AND INITIAL TREATMENT MODALITY** - Mark B Chaskes, MD, MBA; Doug Farquhar, MD, MPH; Keonho A Kong, MD; Adam J Kimple, MD, PhD; Brent Senior, MD; Charles S Ebert Jr, MD, MPH; Brian Thorp, MD; University of North Carolina

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**P125: ANALYSIS OF SINONASAL MALIGNANCIES UTILIZING US CENSUS TRACT DATA** - Chad A Nieri, BS; Madhu Mamidala, PhD; John P Gleysteen, MD; L. Madison Michael, MD; Jeffrey Sorenson, MD; Brian T Fowler, MD; Walter J Humann, MD; Sanjeet V Rangarajan, MD, Meng; University of Tennessee Health Science Center

**P126: MALIGNANCIES OF THE EUSTACHIAN TUBE: A CASE REPORT OF MUCOEPIDERMOID CARCINOMA AND SYSTEMATIC REVIEW** - Victor Hsue<sup>1</sup>; Cameron Farsar<sup>2</sup>; Martin Hopp<sup>1</sup>; Arthur Wu<sup>1</sup>; Dennis M Tang<sup>1</sup>; <sup>1</sup>Cedar-Sinai Medical Center; <sup>2</sup>Idaho College of Osteopathic Medicine

**P127: SINONASAL TERATOCARCINOSARCOMA: A CASE REPORT OF A RARE ENTITY** - Caleb Wilson, BS; Daljit Mann; Kar-Ming Fung, MD; Ian Dunn, MD; Kibwei McKinney, MD; University of Oklahoma, Health Sciences

**P128: AN ALGORITHM FOR SELLAR RECONSTRUCTION FOLLOWING ENDOSCOPIC TRANSPHENOIDAL SURGERY FOR PITUITARY ADENOMA: A REVIEW OF 582 CASES** - Mark B Chaskes, MD, MBA; Blair Barton, MD; Michael Karsy, MD, PhD; Chandala Chitguppi, MD; Tory McKnight; Joshua McCambridge, MD; Adam Flanders, MD; Mindy R Rabinowitz, MD; Gurston Nyquist, MD; Christopher Farrell, MD, MBA; James J Evans, MD; Thomas Jefferson University Hospital

**P129: CURRENT SURGICAL MANAGEMENT IN MIDDLE CRANIAL FOSSA DEFECTS.** - Edoardo Porto, MD<sup>1</sup>; Juan M Revuelta Barbero, MD, PhD<sup>1</sup>; Roberto M Soriano, MD<sup>2</sup>; Eduardo J Medina, BS<sup>1</sup>; Candace E Hobson<sup>2</sup>; Esther X Vivas, MD<sup>2</sup>; Clementino Solares, MD<sup>2</sup>; Gustavo Pradilla, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Emory University, Atlanta, Georgia, USA; <sup>2</sup>Department of Otolaryngology Head and Neck Surgery, Emory University, Atlanta, Georgia, USA

**P130: EXOSCOPE-ASSISTED APPROACH TO REPAIR MIDDLE CRANIAL FOSSA DEFECTS: AN ANATOMIC ATLAS AND CASE REPORT.** - Edoardo Porto, MD<sup>1</sup>; Juan M Revuelta Barbero, MD, PhD<sup>1</sup>; Eduardo J Medina, MD<sup>1</sup>; Roberto M Soriano, MD<sup>2</sup>; Candace E Hobson, MD<sup>2</sup>; Esther X Vivas, MD<sup>2</sup>; Clementino A Solares, MD<sup>2</sup>; Gustavo Pradilla<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Emory University, Atlanta, Georgia, USA; <sup>2</sup>Department of Otolaryngology Head and Neck Surgery, Emory University, Atlanta, Georgia, USA

**P131: PURELY NASAL FLOOR MUCOSA FREE GRAFT FOR EEA TRANSELLAR POSTOPERATIVE DEFECTS.** - Juan M Revuelta Barbero<sup>1</sup>; Roberto M Soriano, MD<sup>2</sup>; Edoardo Porto, MD<sup>1</sup>; Rima S Rindler, MD<sup>1</sup>; David P Bray, MD<sup>1</sup>; Eduardo J Medina, BS<sup>1</sup>; Emily Barrow<sup>2</sup>; Clementino A Solares, MD<sup>2</sup>; Gustavo Pradilla<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Emory University, Atlanta, Georgia, USA; <sup>2</sup>Department of Otolaryngology Head and Neck Surgery, Emory University, Atlanta, Georgia, USA

**P133: MANAGEMENT OF RARE TEMPOROMANDIBULAR JOINT CYSTS WITH INTRACRANIAL EXTENSION: A CASE SERIES AND LITERATURE REVIEW** - Si Chen, MD; Jacob Poynter, MD; Maryam Rahman, MD; Tara C Massini, MD; University of Florida College of Medicine

**P134: 360 DEGREE APPROACHES TO THE CRANIOCERVICAL JUNCTION - A TECHNICAL AND ANATOMICAL OVERVIEW OF THE FAR LATERAL, ANTEROLATERAL AND ENDOSCOPIC ENDONASAL FAR MEDIAL APPROACH.** - Alexander Spiessberger, MD<sup>1</sup>; Basil Gruter, MD<sup>2</sup>; Giyarpuram Prashant, MD<sup>1</sup>; Joshua Haegler, MD<sup>2</sup>; Serge Marbacher, MD<sup>2</sup>; Mark Eisenberg, MD<sup>1</sup>; Aaron Cohen-Gadol, MD<sup>3</sup>; Amir R Dehdashti, MD<sup>1</sup>; <sup>1</sup>North Shore University Hospital; <sup>2</sup>Cantonal Hospital Aarau; <sup>3</sup>Indiana University School of Medicine

**P135: SUPERIOR SEMICIRCULAR CANAL DEHISCENCE REVISION SURGERY OUTCOMES: A SINGLE INSTITUTION'S EXPERIENCE** - Farinaz Ghodrati<sup>1</sup>; Khashayar Mozaffari<sup>1</sup>; Anjali Pradhan<sup>1</sup>; Edwin Ng<sup>1</sup>; Kevin Ding<sup>1</sup>; Shivam Rana<sup>1</sup>; Courtney Duong<sup>1</sup>; Roan N Anderson<sup>1</sup>; Adam Enomoto<sup>1</sup>; John P Sheppard<sup>1</sup>; Matthew Z Sun<sup>1</sup>; H. Westley Phillips<sup>1</sup>; Quinton Gopen<sup>2</sup>; Isaac Yang<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Ronald Reagan UCLA Medical Center, University of California, Los Angeles, CA, United States; <sup>2</sup>Department of Head and Neck Surgery, Ronald Reagan UCLA Medical Center, University of California, Los Angeles, CA, United States

**P136: RECONSTRUCTION OF COMPLEX SKULL BASE DEFECT WITH LATISSIMUS DORSI MYOGENOUS FREE FLAP AND COMPREHENSIVE ALGORITHM FOR SKULL BASE RECONSTRUCTION** - Aliasgher M Khaku, MD, MBA; Andrew Agnew, MD; Nam D Tran, MD; Andre L Beer-Furlan, MD, PhD; Krupal B Patel, MD; Moffitt Cancer Center

**P137: DEVELOPMENT OF TIMEOUT CHECKLIST FOR SKULL-BASE SURGERY** - Rishabh K Sehra; Derek K Kong, MD; Carl Snyderman, MD, MBA; University of Pittsburgh School of Medicine

**P138: EVOLUTION OF AN ENDOSCOPIC SKULL BASE SURGERY PROGRAM IN A COMMUNITY HOSPITAL SETTING: THE FIRST 10 YEARS** - Jacob J Markovicz, BS<sup>1</sup>; Ayden Harris, BS<sup>1</sup>; Devin Mistry, DO<sup>2</sup>; <sup>1</sup>Michigan State University College of Osteopathic medicine; <sup>2</sup>Grand Rapids Ear Nose and Throat

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**P139: COMPARATIVE ANALYSIS OF EXPOSURE AND MANEUVERABILITY PROVIDED BY THE KEYHOLE SUPRAORBITAL EYEBROW APPROACH AND SUPERIOR EYELID ENDOSCOPIC-ASSISTED APPROACH TO THE ANTERIOR CRANIAL FOSSA** - [Eduardo J Medina, BS<sup>1</sup>](#); Juan M Barbero Revuelta, MD, PhD<sup>1</sup>; Edoardo Porto, MD<sup>1</sup>; David P Bray, MD<sup>1</sup>; Tomas Garzon-Muvdi, MD<sup>1</sup>; C. Arturo Solares, MD<sup>2</sup>; Gustavo Pradilla, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Emory University, Atlanta; <sup>2</sup>Department of Otolaryngology Head and Neck Surgery, Emory University, Atlanta, Georgia, USA

**P140: STRATEGIES TO MINIMIZE RECURRENCE IN LOCALLY ADVANCED JUVENILE ANGIOFIBROMA: EXPERT SERIES AND VIDEO DEMONSTRATION** - [Amar Miglani, MD](#); Tripti K Brar, MBBS; Devyani Lal, MD; Mayo Clinic Arizona

**P141: EFFECT OF DIABETES MELLITUS ON POSTOPERATIVE COMPLICATIONS FOLLOWING INTRADURAL SKULL BASE SURGERY** - [Rushi Patel, BA<sup>1</sup>](#); Esther Ogboukiri, BA<sup>1</sup>; Kathryn Bregna, BA<sup>1</sup>; Ariel Omiunu, BS<sup>1</sup>; Prayag Patel, MD<sup>1</sup>; Christina H Fang, MD<sup>2</sup>; Jordon G Grube, MD<sup>3</sup>; Jean Anderson Eloy, MD, FACS, FARS<sup>1</sup>; <sup>1</sup>Rutgers New Jersey Medical School, Department of Otolaryngology - Head and Neck Surgery; <sup>2</sup>Montefiore Medical Center, Department of Otorhinolaryngology - Head & Neck Surgery; <sup>3</sup>Albany Medical Center, Division of Otolaryngology/Head and Neck Surgery, Department of Surgery

**P142: MANAGING INTERNAL CAROTID ARTERY INJURY DURING ENDOSCOPIC TRANSSPHEOIDAL SURGERY** - [Emily S Pascal, MD<sup>1</sup>](#); Taryn Denezpi, CNP<sup>2</sup>; Laura Marsh, CNP<sup>2</sup>; Liat Shama, MD<sup>1</sup>; Javed K Elias, MD<sup>2</sup>; Andrew Carlson, MD<sup>2</sup>; <sup>1</sup>Department of Surgery, Division of Otolaryngology, University of New Mexico School of Medicine, Albuquerque, NM, 87131, United States; <sup>2</sup>Department of Neurosurgery, University of New Mexico School of Medicine, Albuquerque, NM, 87131, United States

**P143: GRADENIGO SYNDROME - ANTERIOR PETROSECTOMY AND RECONSTRUCTION WITH PEDUNCULATED VASCULARIZED TEMPORAL MUSCLE FLAP** - [R A C B Santiago, MD](#); M Mandel, MD; M Obrzut, MD; H Borghei-Razavi, MD; B Adada, MD; Cleveland Clinic

**P144: PEDIATRIC ENDOSCOPIC SKULL BASE APPROACH WITH PRESERVATION OF TURBINATE** - [Siyuan Yu<sup>1</sup>](#); Michael Karsy, MD, PhD, MSc<sup>1</sup>; Giyapuram Prashant, MD<sup>1</sup>; Blair Barton, MD<sup>2</sup>; Marc R Rosen, MD<sup>2</sup>; William Parkes, MD<sup>3</sup>; James J Evans, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Thomas Jefferson University; <sup>2</sup>Department of Otolaryngology, Thomas Jefferson University Hospital, Philadelphia; <sup>3</sup>Department of Otolaryngology, Nemours/Alfred I. duPont Hospital for Children, New Castle County, Delaware

**P145: PATIENT SATISFACTION WITH NOVEL TELEMEDICINE PLATFORM APPLIED TO NEURO-ONCOLOGY** - [Nikolaos Mouchtouris<sup>1</sup>](#); Siyuan Yu, BS<sup>2</sup>; Rupert Smit, MD<sup>1</sup>; Sarah Collopy<sup>1</sup>; Giyapuram N Prashant, MD<sup>1</sup>; Michael Karsy, MD<sup>1</sup>; Maikerly Reyes<sup>1</sup>; Robert Rosenwasser<sup>1</sup>; James Evans<sup>1</sup>; <sup>1</sup>Thomas Jefferson University Hospital; <sup>2</sup>Cooper Medical School

**P146: A RARE CASE OF BILATERAL FACIAL NERVE LESIONS** - Anna K Bareiss, MD; Erika M Moxley, MS; [Neal M Jackson, MD](#); Tulane University

**P147: GANGLION CYST PRESENTING AS AN EXTERNAL AUDITORY CANAL MASS** - [Aaron M Domack](#); Aayushma Regmi; John P Leonetti; Loyola University Medical Center

**P148: TEMPORAL BONE LANGERHANS CELL HISTIOCYTOSIS PRESENTING AS ISOLATED ATAXIA IN A PEDIATRIC PATIENT: CASE REPORT AND LITERATURE REVIEW.** - [Dylan A Fall, BS<sup>1</sup>](#); Amy L Dimachkieh, MD, FACS, FAAP<sup>1</sup>; Anna H Messner, MD, FACS, FAAP<sup>2</sup>; <sup>1</sup>Baylor College of Medicine; <sup>2</sup>Texas Children's Hospital

**P151: SKULL BASE NEUROANATOMY EDUCATION: CURRICULUM OVERVIEW & INITIAL EXPERIENCE** - [Juliana Rotter, MD<sup>1</sup>](#); Christopher S Graffeo, MD, MS<sup>2</sup>; Lucas P Carlstrom, MD, PhD<sup>1</sup>; Avital Perry, MD<sup>3</sup>; Luciano P Leonel<sup>1</sup>; Kathryn Millard<sup>1</sup>; David J Daniels, MD, PhD<sup>1</sup>; Jaime J Van Gompel<sup>4</sup>; Robert J Spinner, MD<sup>1</sup>; Michael J Link<sup>4</sup>; Maria Peris-Celda, MD, PhD<sup>4</sup>; <sup>1</sup>Department of Neurologic Surgery Mayo Clinic, Rochester MN; <sup>2</sup>Department of Neurosurgery, Barrow Neurological Institute, Phoenix AZ; <sup>3</sup>Department of Neurosurgery, Sheba Medical Center, Tel Aviv, Israel; <sup>4</sup>Department of Neurologic Surgery and Otolaryngology-Head and Neck Surgery, Mayo Clinic, Rochester MN

**P152: EXPERIENCE WITH INTERNATIONAL SKULL BASE SURGERY** - Deesha Desai<sup>1</sup>; Paul A Gardner, MD<sup>2</sup>; [Carl H Snyderman, MD, MBA<sup>3</sup>](#); <sup>1</sup>University of Pittsburgh School of Medicine; <sup>2</sup>Department of Neurological Surgery, University of Pittsburgh School of Medicine; <sup>3</sup>Department of Otolaryngology, University of Pittsburgh School of Medicine

**P153: PRESIGMOID RETROLABYRINTINE APPROACH: TECHNICAL NOTE** - [Eduardo J Medina, BS<sup>1</sup>](#); Juan M Barbero Revuelta, MD, PhD<sup>1</sup>; Edoardo Porto, MD<sup>1</sup>; Esther X Vivas, MD<sup>2</sup>; Tomas Garzone-Muvdi, MD<sup>1</sup>; C. Arturo Solares, MD<sup>2</sup>; Gustavo Pradilla, MD<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Emory University, Atlanta; <sup>2</sup>Department of Otolaryngology Head and Neck Surgery, Emory University, Atlanta, Georgia, USA



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**P154: LATERAL ORBITOTOMY FOR RESECTION OF TRIGEMINAL SCHWANNOMA** - [Christina Jackson, MD](#); Yun-Kai Chan; Susan Tonya Stefkó, MD; Georgios A Zenonos; Paul A Gardner, MD; University of Pittsburgh Medical Center

**P156: MODIFIED LATERAL ORBITOTOMY APPROACH TO LESIONS OF THE SUPERIOR ORBITAL FISSURE, CAVERNOUS SINUS, AND MESIAL TEMPORAL LOBE** - [Robert C Rennert](#); Michael T Bounajem; Karol P Budohoski; Michael Karsy; William T Couldwell; Department of Neurosurgery, University of Utah, Salt Lake City, UT

**P157: ENDOSCOPIC ENDONASAL TRANS-SEPTAL APPROACH TO THE CONTRALATERAL MEDIAL ORBITAL REGION.** - [Juan M Revuelta Barbero, MD, PhD<sup>1</sup>](#); Edoardo Porto, MD<sup>1</sup>; Eduardo J Medina, BS<sup>1</sup>; David P Bray, MD<sup>1</sup>; Jordan A Malenke, MD<sup>2</sup>; Ali M Alawieh, MD, PhD<sup>1</sup>; Roberto M Soriano, MD<sup>2</sup>; Emily Barrow, MD<sup>2</sup>; Clementino A Solares, MD<sup>2</sup>; Gustavo Pradilla<sup>1</sup>; <sup>1</sup>Department of Neurosurgery, Emory University, Atlanta, Georgia, USA; <sup>2</sup>Department of Otolaryngology Head and Neck Surgery, Emory University, Atlanta, Georgia, USA

**P158: VOLUMETRIC 3-DIMENSIONAL ANALYSIS OF THE RETROSIGMOID, EXTENDED RETROSIGMOID AND PRESIGMOID-RETROLABYRINTHINE TRANSPETROSAL FISSURE APPROACHES TO THE MIDDLE CEREBELLAR PEDUNCLE.** - [Irakliy Abramov](#); Mohamed A Labib, MD<sup>2</sup>; Lena Mary Houlihan<sup>1</sup>; Marian T Park<sup>1</sup>; Giancarlo Mignucci<sup>1</sup>; David Naughton<sup>1</sup>; Christopher S Graffeo<sup>1</sup>; Mark C Preul<sup>1</sup>; Michael T Lawton<sup>1</sup>; <sup>1</sup>Barrow Neurological Institute; <sup>2</sup>Department of Neurosurgery, University of Maryland

**P159: INTRODUCING THE NUANCES OF TOOL-TISSUE INTERACTION FORCES IN HEMANGIOBLASTOMA SURGERY** - [Abdulrahman Albakr, MD](#); Amir Baghdadi, PhD; Rahul Singh, BSc; Sanju Lama, MD, PhD; Garnette R Sutherland, MD, FRCS; University of Calgary

**P160: NOT ALL NERVE SHEATH TUMORS ARE SCHWANNOMAS: CASE REPORT OF A RARE MECKEL'S CAVE HEMANGIOBLASTOMA AND REVIEW OF THE LITERATURE** - [Danielle Dang, MD, MA<sup>1</sup>](#); Olivia Gilbert, BS, BFA<sup>2</sup>; Nilesh Vyas, MD<sup>1</sup>; <sup>1</sup>Inova Fairfax Medical Campus; <sup>2</sup>LSU Health Sciences Center

**P162: HEALTH CARE DISPARITIES IN THE SURGICAL TREATMENT OF VESTIBULAR SCHWANNOMAS** - [Leena Asfour, MD](#); Emily Kay-Rivest; David Friedmann; Donato Pacione; New York University School of Medicine

**P163: PREVALENCE AND EFFICACY OF CORTICOSTEROID USE FOR SUDDEN SENSORINEURAL HEARING LOSS IN VESTIBULAR SCHWANNOMA: A SURVEY STUDY OF THE ACOUSTIC NEUROMA ASSOCIATION** - [Jeffrey D Bernstein, MD<sup>1</sup>](#); Omid Moshtaghi, MS, MD<sup>1</sup>; Eric Y Du, BS<sup>2</sup>; Shane Shahrestani, PhD, MS<sup>3</sup>; Yin Ren, MD, PhD<sup>4</sup>; Kareem O Tawfik, MD<sup>5</sup>; Marc S Schwartz, MD<sup>1</sup>; Rick A Friedman, MD, PhD<sup>1</sup>; <sup>1</sup>UC San Diego Health; <sup>2</sup>UC San Diego School of Medicine; <sup>3</sup>USC School of Medicine; <sup>4</sup>Ohio State University College of Medicine; <sup>5</sup>Vanderbilt University Medical Center

**P164: USE OF NOVEL MICRO-ENDOSCOPE TO EXAMINE FUNDUS OF THE INTERNAL AUDITORY CANAL IN THE MIDDLE CRANIAL FOSSA APPROACH** - [Edward J Doyle, MD<sup>1</sup>](#); Gavriel Kohlberg, MD<sup>2</sup>; John Greinwald, MD<sup>3</sup>; Norberto Andaluz, MD<sup>1</sup>; Mario Zuccarello, MD<sup>1</sup>; Ravi N Samy, MD<sup>1</sup>; <sup>1</sup>University of Cincinnati; <sup>2</sup>University of Washington; <sup>3</sup>Cincinnati Children's Medical Center

**P165: INVESTIGATION INTO THE EFFECT OF IMMUNOSUPPRESSION ON CLINICAL OUTCOMES AFTER STEREOTACTIC RADIOSURGERY FOR TREATMENT OF VESTIBULAR SCHWANNOMA** - [Lorenzo Rinaldo, MD, PhD](#); Michael J Link, MD; Mayo Clinic

**P166: PREDICTION OF VESTIBULAR SCHWANNOMA RESECTION OUTCOMES USING THREE RISK STRATIFICATION SCORES AND DEVELOPMENT OF A MACHINE LEARNING-BASED VESTIBULAR SCHWANNOMA RISK SCORE** - [Oliver Y Tang, BS<sup>1</sup>](#); Ankush I Bajaj, BS<sup>1</sup>; Kevin Zhao, DO<sup>2</sup>; James K Liu, MD<sup>2</sup>; <sup>1</sup>Warren Alpert Medical School of Brown University; <sup>2</sup>New Jersey Medical School

**P167: HEARING PRESERVATION IN REVISION RETROSIGMOID APPROACH FOR REMOVAL OF ACOUSTIC NEUROMA.** - [Brendon K Warner<sup>1</sup>](#); Edward Doyle<sup>2</sup>; Ravi N Samy<sup>2</sup>; <sup>1</sup>The University of Arizona College of Medicine - Phoenix; <sup>2</sup>The University of Cincinnati

**P169: UNILATERAL VS BILATERAL CRANIOTOMY IN MANAGEMENT OF OLFACTORY GROOVE MENINGIOMAS** - [Abhinav R Thummala](#); Aaron Plitt, MD; Samuel Barnett, MD; Bruce Mickey, MD; Tomas Garzon-Muvdi, MD; UT Southwestern Medical Center

## 2022 NASBS Skull Base Dissection Course

**WEDNESDAY, FEBRUARY 16 & THURSDAY, FEBRUARY 17, 2022**

This is a comprehensive course designed to provide focused anatomic lectures with complementary dissections. This format will allow learners to increase their knowledge base through thoughtful didactics. Learners will be able to work shoulder to shoulder with experts in the field to apply the aforementioned knowledge to anatomic dissections thereby enhancing their skill sets through appropriate cadaveric dissection. This is ideal for all skull base specialists, notably neurosurgeons, rhinologists, otologists and oculoplastic surgeons.

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

### Learning Objectives

This activity is designed for physicians. Upon completion of this course, learners will be able to:

1. Develop an appropriate surgical plan to approach varying skull base pathology.
2. Apply new anatomic and surgical knowledge to one's practice.

### ***CONTINUING MEDICAL EDUCATION CREDIT INFORMATION***

#### **Accreditation**

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

#### ***AMA PRA Category 1 Credits™***

The American College of Surgeons designates this live activity for a maximum of 4.75 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



AMERICAN COLLEGE OF SURGEONS  
*Inspiring Quality:  
Highest Standards, Better Outcomes*



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DIVISION OF EDUCATION



## 2022 NASBS Skull Base Dissection Course (Cont.)

**WEDNESDAY, FEBRUARY 16 & THURSDAY, FEBRUARY 17, 2022**

**Lectures will be held in Pipai Kave II & III - Dissections will take place in Mobile Labs**

**Moderators: Brian Thorp, MD & Gustavo Pradilla, MD**

### Wednesday, February 16

7:45am-8:00am	Introduction
8:00am-8:15am	Endonasal Skull Base Anatomy
8:15am-8:30am	Step by Step Transplanar/Transtubercular/Transsellar
8:30am-8:45am	Step by Step Transcribriform
8:45am-9:00am	Step by Step Transclival
9:00am-9:15am	Step by Step Transodontoid
9:15am-9:30am	Break
9:30am-12:00pm	Dissection
12:00pm-1:00pm	Lunch
1:00pm-1:15pm	PPF/ITF Anatomy
1:15pm-1:30pm	Step by Step PPF/ITF Dissection
1:30pm-1:45pm	Step by Step TONES
1:45pm-2:00pm	Break
2:00pm-5:00pm	Dissection
5:00pm	Question and Answer

### Thursday, February 17

7:30am-7:45am	Introduction
7:45am-8:00am	Parasellar, Suprasellar, Anterior Cranial Fossa Anatomy
8:00am-8:15am	Step by Step Extended Bifrontal and Transbasal
8:15am-8:30am	Step by Step Pterional, OZ, Pre-temporal Transcavernous
8:30am-8:45am	Step by Step Middle Fossa with Kawase
8:45am-9:00am	Step by Step Retrosigmoid
9:00am-9:15am	Step by Step Far Lateral
9:15am-9:30am	Break
9:30am-12:00pm	Dissection
12:00pm-1:00pm	Lunch
1:00pm-1:15pm	Step by Step Translabyrinthine
1:15pm-1:30pm	Step by Step Transcochlear
1:30pm-1:45pm	Step by Step Endoscopic Transotic
1:45pm-2:00pm	Break
2:00pm-5:00pm	Dissection
5:00pm	Question and Answer

The North American Skull Base Society would like to recognize and thank the following companies for their support of the 31st Annual Meeting of the North American Skull Base Society

## **DIAMOND LEVEL MARKETING SUPPORT**

Stryker

## **DIAMOND LEVEL EDUCATIONAL GRANT**

Mizuho America, Inc

## **PLATINUM LEVEL EDUCATIONAL GRANT**

Medtronic

## **GOLD LEVEL EDUCATIONAL GRANT**

DePuy Synthes  
KARL STORZ Endoscopy-America, Inc.

## **SILVER LEVEL EDUCATIONAL GRANT**

Integra LifeSciences Corporation  
NYU Langone Health Department of Neurosurgery  
Olympus America, Inc.

## **BRONZE LEVEL EDUCATIONAL GRANT**

Aesculap, Inc.

## **EDUCATIONAL GRANT – HANDS-ON COURSE**

Stryker

## **EDUCATIONAL GRANT – ANNUAL MEETING**

Cook Medical

## **SPONSORSHIP – NEW MEMBER RECEPTION**

Acclarent

## **IN-KIND EQUIPMENT DONORS**

Apex Medical, Inc.  
Integra LifeSciences Corporation  
KLS Martin  
Medtronic  
Mizuho America, Inc.  
Stryker

# Exhibitors

## **ACE Medical Co**

Booth #205

<https://www.acemedicalco.com>

Surgical instruments designed for the advanced surgeon. As technique migrates to less invasive approaches, we are your innovative solution for better outcomes. Patients come to you for your expertise and ability to treat complex pathologies, come see why our instruments all you better results.

## **Acumed**

Booth #202

<https://www.acumed.net>

Acumed | OsteoMed serves highly skilled specialized surgeons who demand comprehensive, high-quality medical devices for patients with simple to complex injuries for optimal restoration of function. For more than two decades, OsteoMed has remained sharply focused on meeting the needs of surgeons and their patients by rethinking clinical possibilities with a focus on procedural efficiency, efficacy, and uncompromised quality. A highly nimble and responsive company, OsteoMed is a leading global innovator of specialty medical devices, surgical implants, and powered surgical instruments.

## **Aesculap, Inc.**

Booth #304

<https://www.aesculapusa.com>

Aesculap, Inc., a B. Braun company, is part of a 180-year-old global organization focused on meeting the needs of an ever-changing healthcare community. Through close collaboration with its customers, Aesculap provides advanced technologies for neurosurgery – such as our new Aeos® Robotic Digital Microscope – plus general surgery and sterilization technologies.

## **Apex Medical**

Booth #505

(610) 240-4905

<https://www.apexmed.com>

Apex works with leading neurosurgeons to make delicate, safe, sharp microsurgical dissection possible. We agree with one of the first neurosurgeons to use our arachnoid knives that, “everything before this has been micro-tearing.” Find out why the leading neurosurgeons in the world are so excited about Apex Arachnoid Knives.

## **BK Medical**

Booth #604

<https://www.bkmedical.com/applications/neurosurgery-ultrasound/>

Unlock real-time imaging solutions for every neurosurgeon subspecialty with BK Medical. Rely on intraoperative ultrasound to assess for brain shift, access hard-to-reach areas, help localize and remove lesions, and identify residual tumor. BK's new Minimally Invasive Transducer (N20P6) enables active imaging for active decision-making during skull base and endonasal procedures.

# Exhibitors (cont.)

## **Black Forest Medical Group**

Booth #204

<https://www.blackforestmedical.com>

Black Forest Medical Group has achieved a unique competence in neurosurgical medical technology around the globe. Neurosurgeons worldwide trust in DORO® Cranial Stabilization and Retractor Systems, to perform life-saving surgeries efficiently and safely. Global Neurosurgical opinion leaders support Black Forest Medical Group's vision to create a new world in neurosurgery.

## **BrainLab**

Booth #105

<https://www.brainlab.com>

## **DePuy Synthes**

Booth #600

<https://www.depuysynthes.com>

## **KARL STORZ Endoscopy - America, Inc.**

Booth #501

<https://www.karlstorz.com>

KARL STORZ products support surgical efficiency and successful outcomes. Our solution for minimally invasive endoscopic skull base surgery is the most comprehensive on the market, including specialized instrumentation and an advanced visualization platform. New, advanced visualization solutions include the 4 mm NIR/ICG endoscope and TIPCAM®1 S 3D 4 mm endoscope.

## **Kirwan Surgical Products LLC**

Booth #503

<https://www.ksp.com>

Kirwan Surgical Products LLC is dedicated to the design and manufacture of quality reusable and disposable bipolar electrosurgical instruments for demanding microsurgical specialties. Kirwan is very excited to introduce the new POLARIS™ series non-stick bipolar forceps. Offered in both reusable and disposable models, these non-stick bipolar forceps have surpassed other bipolar forceps in non-stick performance and surgeon comfort. POLARIS™ non-stick bipolar forceps represent the next generation of bipolar non-stick technology. Other featured products include Kirwan's AURA non-stick bipolar forceps, bipolar pencils, bipolar cords and the 20, 40 and 70-Watt AURA™ series Bipolar Electrosurgical Generators. Visit [www.ksp.com](http://www.ksp.com)

## **KLS Martin**

Booth #300

<https://www.klsmartinnorthamerica.com>

KLS-Martin is a company dedicated to providing innovative medical devices for neurosurgery, offering a wide variety of surgical instruments, titanium plates and mesh, custom cranial implants, and the revolutionary SonicWeld Rx system for resorbable fixation. Currently based out of Jacksonville, Florida, we have highly qualified representatives covering the needs of surgeons throughout North America.

# Exhibitors (cont.)

## Longeviti Neuro Solutions

Booth #103

<https://www.longeviti.com/>

Longeviti Neuro Solutions is a Baltimore based neurotechnology company with a focus on innovative solutions for complex brain surgeries. Longeviti implants allow for post operative imaging using ultrasound and address the complex clinical need of where to safely implant neurotechnology.

## Medtronic

Booth #s 301, 303

<https://www.medtronic.com>

We lead global healthcare technology, boldly attacking the most challenging problems. Our Mission — to alleviate pain, restore health, and extend life — unites a global team of 90,000+ people, and our technologies transform the lives of two people every second, every hour, every day. Expect more from us.

Medtronic. Engineering the extraordinary.

## Mitaka USA

Booth #104

<https://www.mitakausa.com>

Mitaka's microsurgery solutions are built for the surgeon who is dedicated to performance. The MM90 super-neuro-microscope offers high resolution and magnification in a compact optical with next-gen tri-fluoro capabilities. We are committed to providing innovative technology in the evolving fields of increased resolution in digital and optical microscopy.

## Mizuho America, Inc.

Booth #s 400, 402

<https://www.mizuho.com>

Sugita® and other Mizuho-designed products were developed in collaboration with the world's leading neurosurgeons and are uniquely suited for the rigors of complex procedures. Proven materials, patented features, and precise engineering converge to make Mizuho a practical choice. Mizuho's offers a vast selection of microsurgical instrumentation, featuring Sugita® aneurysm clips.

## NICO Corporation

Booth #605

<https://www.niconeuro.com/>

NICO Corporation is a leader in interventional technologies used in neurosurgery. Using a parafascicular trans-sulcal approach, standardized technologies achieve non-disruptive access to the brain with BrainPath, automated tumor removal and clot evacuation with Myriad NOVUS, and intraoperative collection and preservation of tumor tissue that may enable more precise tissue evaluation.

## NSK America Corporation

Booth #200

<https://www.nsk-surgery.com/>

Since its foundation in 1930, NSK has been dedicated to high-speed rotary cutting technology and its applications. Primado2 is NSK's second generation electric surgical system. A wide range of motors, handpieces, bone saws, and wire pin driver ensures a versatile, complete system well suited for a variety of surgical applications.

# Exhibitors (cont.)

## **Novarad**

Booth #100

<https://www.novarad.net>

## **OLYMPUS AMERICA INC.**

Booth #201

<https://medical.olympusamerica.com/>

Olympus is passionate about creating customer-driven solutions for the medical, life sciences, and industrial equipment industries. As a leading medical technology company, our Medical business uses innovative capabilities in medical technology, therapeutic intervention, and precision manufacturing to help healthcare professionals deliver diagnostic, therapeutic, and minimally invasive procedures to improve clinical outcomes, reduce overall costs, and enhance the quality of life for patients.

## **OssDsign**

Booth #601

<https://www.ossdsign.com>

## **Peter Lazic US Inc.**

Booth #603

<https://www.peterlazic.com>

Peter Lazic specializes in the development and manufacturing of aneurysm clips and micro instrumentation. Instrumentation includes micro instruments for skull base, cerebrovascular, and endoscopic surgery.

## **SPIWAY**

Booth #602

<https://www.spiway.com>

SPIWAY LLC provides elegantly simple access technologies for endoscopic neurosurgery that aim to improve procedures and patient care. The SPIWAY Endonasal Access Guide is designed to improve visualization of critical structures by reducing the run-in of blood and to prevent trauma from the 100+ passes of instruments/hour through unprotected tissue.

## **Stryker**

Booth #s 401, 403, 405, 500, 502, 504

<https://www.stryker.com>

Stryker is one of the world's leading medical technology companies and, together with our customers, is driven to make healthcare better. We offer innovative products and services in Orthopaedics, Medical and Surgical, and Neurotechnology and Spine that help improve patient and hospital outcomes.

Together with our customers, we are driven to make healthcare better.



# Exhibitors (cont.)

## **Surgical Theater**

Booth #404

<https://www.surgicaltheater.com>

Surgical Theater unleashes the magic of visualization for surgeons, patients, and healthcare facilities by delivering experiential 360°-3D at every step of the surgical journey. With Precision XR, the first and only evidence-based visualization platform, you can improve surgical planning, patient engagement, outcomes, and so much more.

## **Sutter Medical Technologies**

Booth #305

<https://www.Sutter-usa.com>

## **Synaptive Medical**

Booth #101

<https://www.synaptivemedical.com/>

Synaptive Medical is a Canadian medical device company, focused on supporting healthcare professionals and systems in patient diagnosis and treatment. Synaptive's suite of products include MRI, surgical planning, navigation, and robotic visualization – all of which can be seamlessly combined or used independently in the operating room.

## **TAKAYAMA/MUTOH**

Booth #302

<https://www.TAKAYAMAmicro.com>

TAKAYAMA here!! Please come to take a look REAL MICROsurgical Instruments. iON new scissors series, KW Membrane-Grasping Forceps, Super-Suction MiNi, etc. Many New Products now on. Are you NeuroSamurai? YES you are.

## **Xoran Technologies**

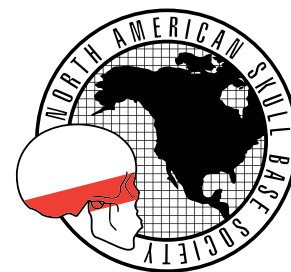
Booth #203

<https://www.xorantech.com>

Xoran Technologies is the pioneer of low-dose radiation, cone beam CT scanners for use in-office and operating rooms. xCAT IQ is a mobile CT scanner that can be positioned in the operating room to acquire cranial images at the time of surgery. This device, which resembles a large cart, is relatively compact, can be pushed into position by a single operator. Once in place, acquisition of the CT scan takes about 40 seconds and image reconstruction takes a couple of minutes.

# 31<sup>st</sup> Annual Meeting

February 18-20, 2022, Sheraton Grand at Wild Horse Pass, Phoenix, AZ



## 2022 REGISTRATION FORM

### REGISTRANT INFORMATION

Please fill in ALL information for your registration to be processed.

PREFIX	FIRST NAME	MI	LAST NAME	DEGREE
EMAIL ADDRESS				
INSTITUTION			TITLE/DEPARTMENT	
ADDRESS				
CITY	STATE	POSTAL CODE	COUNTRY	
WORK PHONE		MOBILE PHONE		

### SELECT YOUR SPECIALTY

- |  |  |   |   |
|--|--|---|---|
| <input type="checkbox"/> Neurosurgery          | <input type="checkbox"/> Otolaryngology  | <input type="checkbox"/> Rhinology          | <input type="checkbox"/> Medical Oncology |
| <input type="checkbox"/> Head & Neck Surgeon   | <input type="checkbox"/> Plastic Surgery | <input type="checkbox"/> Pathology          | <input type="checkbox"/> Other: _____     |
| <input type="checkbox"/> Otology/Neurotology   | <input type="checkbox"/> Ophthalmology   | <input type="checkbox"/> Allied Health Pro  | _____                                     |
| <input type="checkbox"/> Maxillofacial Surgery | <input type="checkbox"/> Radiology       | <input type="checkbox"/> Radiation Oncology |   |

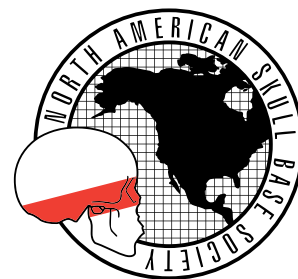
### REGISTRATION FEES — IN-PERSON MEETING

This registration option will include full access to the in-person annual meeting, maximum number of CME, and access to the session recordings from the Saturday Live stream. The recording will be made available after the conclusion of the Annual Meeting.

	EARLY BIRD <i>On or Before December 10, 2021</i>	REGISTRATION <i>On or Before February 14, 2022</i>	ONSITE <i>February 15-20, 2022</i>	TOTALS
<b>Member</b>	<input type="checkbox"/> \$650	<input type="checkbox"/> \$725	<input type="checkbox"/> \$775	
<b>Non-Member</b>	<input type="checkbox"/> \$850	<input type="checkbox"/> \$925	<input type="checkbox"/> \$975	
<b>Medical Student</b>	<input type="checkbox"/> \$360	<input type="checkbox"/> \$435	<input type="checkbox"/> \$485	
<b>Resident</b>	<input type="checkbox"/> \$360	<input type="checkbox"/> \$435	<input type="checkbox"/> \$485	
<b>Fellow</b>	<input type="checkbox"/> \$360	<input type="checkbox"/> \$435	<input type="checkbox"/> \$485	
<b>Allied Health Professional</b>	<input type="checkbox"/> \$360	<input type="checkbox"/> \$435	<input type="checkbox"/> \$485	
<b>PRE-MEETING COURSE</b> See course schedule in the Advance Program for further descriptions.				
<b>Two-Day Hands-On Cadaver Dissection with Lectures</b> February 16-17, 2022	<input type="checkbox"/> \$1,499	<input type="checkbox"/> \$1,799	<input type="checkbox"/> \$1,799	

SUBTOTAL \$ \_\_\_\_\_

# 2022 REGISTRATION FORM CONTINUED



## REGISTRATION FEES — VIRTUAL ACCESS TO SATURDAY, FEB. 19 LIVE STREAM OF THE GENERAL SESSION AND GLOBAL EDUCATION DAY ONLY

Includes limited access to the Saturday, February 19th meeting program, and will offer a live stream of the General Session and Global Education Day ONLY.

Registrants will also have access to the on-demand recording of these sessions, which will be made available after the conclusion of the Annual Meeting. This registration option will offer a limited number of CME.

	REGISTRATION <i>On or Before February 20, 2022</i>	TOTALS
<b>Member</b>	<input type="checkbox"/> \$100	
<b>Non-Member</b>	<input type="checkbox"/> \$100	
<b>Medical Student</b>	<input type="checkbox"/> \$100	
<b>Resident</b>	<input type="checkbox"/> \$100	
<b>Fellow</b>	<input type="checkbox"/> \$100	
<b>Allied Health Professional</b>	<input type="checkbox"/> \$100	

SUBTOTAL \$ \_\_\_\_\_

## RSVPs

Please check those events you will be attending.

- ☐ **I will attend the NASBS Business Lunch** – February 18, 2022 (Members ONLY)  
OR  
☐ **I will attend Lunch in the Exhibit Hall** – February 18, 2022 (Non-Members)  
☐ **I will attend the NASBS Welcome Reception** – February 18, 2022  
☐ **I will attend Lunch in the Exhibit Hall** – February 19, 2022  
☐ **I will attend the NASBS Social Event at Sheraton Grand - Equestrian Center** – February 19, 2022

## GUEST REGISTRATION

Guest registration is necessary for attendance at the Welcome Reception and the NASBS Social Event at Sheraton Grand at Wild Horse Pass - Equestrian Center.

FIRST NAME

LAST NAME

EMAIL

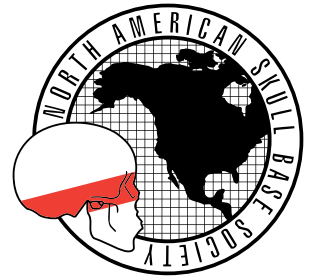
		TOTALS
<b>Guest Ticket for the NASBS Welcome Reception</b> February 18, 2022	<input type="checkbox"/> \$75	
<b>Guest Ticket for the NASBS Social Event</b> February 19, 2022	<input type="checkbox"/> \$150	

\*Guest tickets are not available with live stream registration

SUBTOTAL \$ \_\_\_\_\_

**TOTAL DUE \$ \_\_\_\_\_**

# 2022 REGISTRATION FORM CONTINUED



## TERMS AND CONDITIONS:

- A fee of \$100 will be assessed for all cancellations through February 14, 2022. Cancellations will not be honored after February 14, 2022 and no refunds will be processed after this date.
- Membership will be verified; all NASBS Member registrations without valid corresponding membership record will be charged the Non-Member registration fee.
- I hereby agree to the recording and videotaping of my appearance and participation at the 2022 NASBS meeting activity. I acknowledge that NASBS is and will be the sole owner of all rights, including but not limited to, copyrights in and to the videotape and the recordings of the PROGRAM, for educational purposes. NASBS shall have the right to distribute and broadcast the videotape or recordings and may use presenter's name, portrait, picture and biographical information to publicize and advertise the videotape or recordings.

INITIALS \_\_\_\_\_

- By initialing here, you agree that your contact information will be shared with the 2022 NASBS Meeting vendors, sponsors, and exhibitors. In addition, contact information will be added to NASBS marketing lists and will be used for the marketing purposes of NASBS activities only. You can always unsubscribe if you no longer wish to receive our emails. We will never sell or share your contact information to third party company.

INITIALS \_\_\_\_\_

- I understand that NASBS has a COVID vaccine mandate for all 2022 meeting attendees, exhibitors and staff, and I attest that I am fully vaccinated; I understand that NASBS has a mask mandate, and I will abide by it in all public settings, except when actively eating or drinking; I understand that I will be required to demonstrate that I am fully vaccinated and not exhibiting any COVID symptoms in order to pick up my badge onsite.

INITIALS \_\_\_\_\_

## PAYMENT INFORMATION

- ☐ **Check:** Please make payable to North American Skull Base Society (NASBS)  
*All check payments MUST be accompanied by a completed registration form to ensure proper processing*
- ☐ **Credit Card:**   ☐ Mastercard   ☐ Visa   ☐ AMEX

NUMBER: \_\_\_\_\_ CVC II CODE (last 3 digits on back of card): \_\_\_\_\_

EXP. DATE: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

## MAIL OR FAX THIS FORM WITH PAYMENT TO:

### Meeting Registrar

11300 W. Olympic Blvd., Suite 600, Los Angeles, CA 90064

PHONE: 310-424-3326, ext. 128 • FAX: 310-437-0585 • EMAIL: [registration@nasbs.org](mailto:registration@nasbs.org)

# Planning Committee Disclosures

Disclosure Name List	Company	Received	Role
Gustavo Pradilla	Stryker	Consulting Fee	Consultant
Daniel Prevedello	Stryker	Consulting Fee	Consultant
	Storz	Research	Researcher
	Integra	Consulting Fee	Consultant
	Mizuho	Royalty	Inventor
	KLS-Martin	Royalty	Inventor
	ACE-Medical	Royalty	Inventor
Cristine Klatt-Cromwell	Intersect ENT	Consulting Fee	Consultant
	Medtronic	Consulting Fee	Consultant
Gustavo Pradilla	Nico Corporation	Research	Principal Investigator
	Synaptive	Honoraria	Speaking/Teaching
John Golfinos	Major League Baseball Players' Association	Salary	Consultant
	Surgical Theater	Ownership Interest	Consultant
Carlos Pinheiro-Neto	Zimmer Biomet	Consulting Fee	Consultant
	Medtronic	Research	Research Grant
Christopher Rassekh	Drexel University	Other	Co-Investigator
	Medtronic	Other	Speaking/Teaching
	Cook Medical	Other	Speaking/Teaching
Jose Gurrola	Genetech	Consulting Fee	Consultant

# Planning Committee No Disclosures

Bharat Guthikonda  
 Brian Thorp  
 Camilo Reyes  
 Carolina Benjamin  
 Clementino Solares  
 David Friedmann  
 David Jang  
 Diego Mendez Rosito  
 Donato Pacione  
 Gelareh Zadeh  
 Jamie Van Gompel  
 Jeffrey Steinberg  
 Juan Fernandez-Miranda  
 Lee Zimmer  
 Matthew Old  
 Oswaldo Henriquez

# Faculty Disclosures

Disclosure Name List	Company	Received	Role
A. Samy Youssef	Mizuho	Royalty	Product inventor
	Stryker	Honoraria	Consultant
Adam DeConde	GlaxoSmithKline	Salary	Advisory Committee
Adam Zanation	Johnson and Johnson	Consulting Fee	Consultant
Alejandro Rivas	Cochlear	Honoraria	Consultant
	Cook Medical	Honoraria	Consultant
	Grace Medical	Honoraria	Consultant
	Stryker	Honoraria	Consultant
Alexandre Felippu	Instituto Felippu	Salary	Board Member
Andrew S. Little	BK Medical	Consulting Fee	Consultant
	Kogent Surgical	Ownership Interest	Investor
	Spiway	Ownership Interest	Consultant
Brian Lobo	Medtronic, Inc	Consulting Fee	Consultant
Carl Snyderman	Peter Lazic US, Inc.	Royalty	Consultant
	SPIWay, LLC	Ownership Interest	Consultant
Carlos Pinheiro-Neto	Medtronic	Research	Awarded a research grant
	Zimmer Biomet	Consulting Fee	Consultant
Chandranath Sen	Penumbra	Ownership Interest	Stock owner
Charles S. Ebert	Acclarent	Consulting Fee	Consultant
Christopher H. Rassekh	Drexel University	Other	Co-Investigator
	Medtronic	Consulting Fee	Consultant
	Medtronic	Other	Speaking/Teaching
Claudia F.E. Kirsch	Primal Pictures 3D Anatomy - Informa	Royalty	Consultant
Colin L. W. Driscoll	Envoy Medical	Consulting Fee	Consultant
Cristine N Klatt-Cromwell	Intersect ENT	Consulting Fee	Consultant
	Medtronic	Consulting Fee	Consultant
Dan Rootman	Horizon	Honoraria	Consultant



## Faculty Disclosures (cont.)

Daniel F. Kelly	Mizuho, Inc	Royalty	Consultant
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	Surgical Theater	Ownership Interest	Consultant
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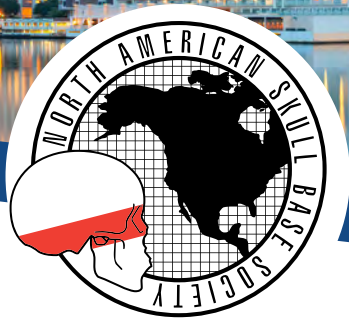
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