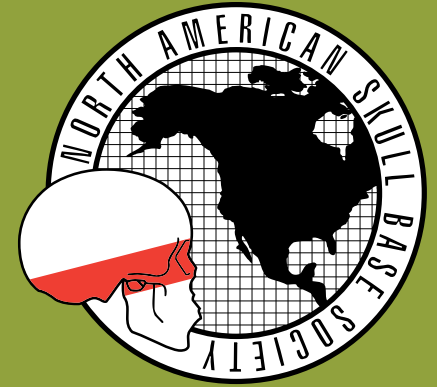


2016
FINAL PROGRAM

NORTH AMERICAN SKULL BASE SOCIETY

26th ANNUAL MEETING



“Innovation & Creativity in Skull Base Surgery”

February 12-14, 2016, Fairmont Scottsdale Princess, Scottsdale, Arizona

Pre-Meeting Course: February 10-11, 2016, Mayo Clinic, Scottsdale, Arizona



PRESIDENT: Carl Snyderman, MD, MBA

PROGRAM CHAIR: James K. Liu, MD and Allan D. Vescan, MD, MSc, FRCSC

SCIENTIFIC PROGRAM COMMITTEE: Carl Snyderman, MD, MBA, President; Jacques Morcos, MD, FRCS, President Elect; Ian Witterick, MD, MSc, FSRC, Vice President; James Evans, MD, Secretary; Ricardo Carrau, MD, Treasurer; James K. Liu, MD, Program Co-Chair; Allan D. Vescan, MD, MSc, FRCSC, Program Co-Chair; Mustafa Baskaya, MD; Robert Cueva, MD; Jean Anderson Eloy, MD; Rick Friedman, MD, PhD; Paul A. Gardner, MD; Peter Gooderham, MD; Arif Janjua, MD; Marc S. Schwartz, MD; S. Tonya Stefko, MD; Eric W. Wang, MD; A. Samy Youssef, MD, PhD; Gelareh Zadeh, MD, PhD; and Adam Zanation, MD

PRE-MEETING COURSE CHAIRS: Bernard Bendok, MD and Devyani Lal, MD

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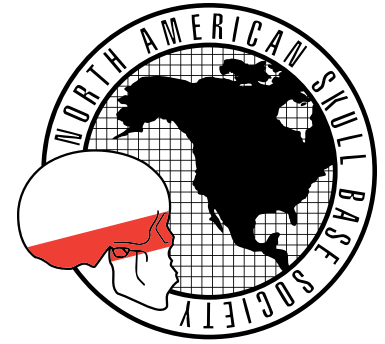


Welcome

Dear Colleagues:

Welcome to the **26th Annual Meeting of the North American Skull Base Society** at the Fairmont Scottsdale Princess in Scottsdale, AZ.

This year's pre-meeting practical course is organized by Devyani Lal and Bernard Bendok from the Mayo Clinic in Scottsdale and will be held at the nearby Mayo Clinic Building and state-of-the-art Center for Procedural Innovation. This year's course has something for everyone and will offer two tracks for participation (prosection/dissection and prosection/surgical simulation). The prosection/dissection track will address the optimal surgical approach and will contrast transcranial and endoscopic approaches. For the first time, there will be myriad opportunities to gain hands-on experience with surgical tools and products using surgical simulation exercises in the prosection/surgical simulation track. Additionally, the lectures and prosections will be offered as a webcast to an international audience.



The theme of this year's meeting is, "Innovation & Creativity in Skull Base Surgery." Surgical innovation is driven by technological advancement and the creativity of the surgeon. The Program Committee, chaired by James Liu (Rutgers) and Allan Vesca (University of Toronto) has worked hard to develop a program that offers innovative content in an innovative format. The program will include Master Surgeon classes highlighting the surgical techniques of master surgeons, expert panel sessions integrated with proffered papers, fast-paced PechaKucha sessions, Brainstorming sessions, Video Coaching, and other surprises. We anticipate a very competitive field for the best manuscript by a fellow, resident or medical student. The top three winners will be presented at a plenary session.

In keeping with the theme of this year's meeting, we have three innovative and exciting keynote speakers that demonstrate the importance of creative thinking in addressing different types of challenges: the future of robotic technology (Eric Meyhofer, leader of Uber's *Advanced Technologies Center*), the conquest of extreme environments (Alison Levine; completed Adventure Grand Slam; author of *On The Edge: The Art of High-Impact Leadership*), and solving social problems (Bill Strickland; CEO, social architect, community leader, visionary; author of *Make the Impossible Possible*). Each speaker will provide a unique perspective on the importance of teamwork and problem-solving in challenging situations.

We are honored to have faculty delegations from the European Skull Base Society (President: Robert Behr from Germany) and the World Federation of Skull Base Societies (President: Kenji Ohata from Japan) participating in the program. There will also be joint sessions with the American Rhinologic Society (President: Peter Hwang).

Working behind the scenes, the NASBS committees and several task forces are addressing research priorities, billing and coding questions, and working hard to increase value for NASBS members. The Membership Committee (chaired by James Evans) continues to add new members to our ranks and maintain the diversity of our membership. The Coding & Billing Task Force (led by Adam Folbe) is working in conjunction with Zupko & Associates to develop NASBS guidelines for proper billing and coding of endoscopic procedures. The History Committee will utilize the Annual Meeting to capture an oral history of skull base surgery from early pioneers and past presidents of the society.

In recognition of the global community of skull base surgery, we look forward to starting the Annual Meeting with a social event for international attendees on Thursday evening. The Welcome Reception for all attendees will be on Friday evening with a special reception held on Saturday for all new members. The social event on Saturday evening will highlight the local culture of the southwest so bring your cowboy (or cowgirl) attire.

Enjoy your time in Scottsdale!



Carl Snyderman, MD, MBA
President, North American Skull Base Society

General/CME Information

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ANNUAL MEETING OBJECTIVES

At the conclusion of this activity, participants should be able to:

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

THE FINAL
PROGRAM AND
ABSTRACTS CAN
BE VIEWED BY
VISITING

NASBS.ORG

WHO SHOULD ATTEND

The NASBS meeting is open to NASBS members and non-members.

TARGET AUDIENCE

- Head and neck surgeons, neurosurgeons, reconstructive surgeons, radiotherapists, radiologists, medical oncologists, physical rehabilitation physicians, ophthalmologists, neurologists, maxillofacial surgeons, maxillofacial prosthodontists and endocrinologists.
- Targeted allied health professionals will include physical therapists, oncology nurses, oral health specialists, occupational therapists, speech and language pathologists, optometrists, psychologists and anaplasologists.

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 20.25 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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DISCLOSURE INFORMATION

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

General/CME Information

MEMBERSHIP BENEFITS

- **Scientific Journal:** Members will receive the official journal of the society, *The Journal of Neurological Surgery Part B*, a bimonthly publication that contains peer reviewed original articles, review articles, and position papers. It also presents news and information on an international scope to keep members aware of recent and upcoming events, activities, and evolving developments in skull base surgery.
- **Continuing Medical Education:** Members will receive listings of continuing medical education opportunities in skull base surgery, as well as scientific courses sponsored by the NASBS and will receive reduced registration fees for national scientific meetings.
- **Membership Directory:** Online access to all members contact information.
- **NASBS Website Access:** Members will have access to Member-Only discussion areas on the Society's website.

Please visit www.nasbs.org/about/membershipinfo.php for more information or email membership@nasbs.org.

WHY JOIN NASBS?

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

MEETING LEADERSHIP

NASBS Scientific Program Committee

Carl Snyderman, MD, MBA, *President*
James K. Liu, MD
Scientific Program Co-Chair
Allan D. Vescan, MD, MSc, FRCSC
Scientific Program Co-Chair
Bernard Bendok, MD
Pre-Meeting Course Co-Chair
Devyani Lal, MD
Pre-Meeting Course Co-Chair
Mustafa Baskaya, MD
Robert Cueva, MD
Jean Anderson Eloy, MD
Rick Friedman, MD, PhD
Paul A. Gardner, MD
Peter Gooderham, MD
Arif Janjua, MD
Marc S. Schwartz, MD
S. Tonya Stefko, MD
Eric W. Wang, MD
A. Samy Youssef, MD, PhD
Gelareh Zadeh, MD, PhD
Adam Zanation, MD

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Jacques Morcos, MD
President Elect – Miami, FL
Ian Witterick, MD, MSc, FSRC
Vice President – Toronto, ON, Canada
James Evans, MD
Secretary – Philadelphia, PA
Ricardo Carrau, MD
Treasurer – Columbus, OH
Michael Link, MD
Immediate Past President – Rochester, MN
James K. Liu, MD
Scientific Program Co-Chair – Newark, NJ
Allan D. Vescan, MD, MSc, FRCSC
Scientific Program Co-Chair – Toronto, ON, Canada

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Michael Chicoine, MD
Carlos David, MD
Ivan El-Sayed, MD
Steven Frank, MD
Michael Kupferman, MD
Vikram Prabhu, MD
Thomas Roland, MD
Sandeep Samant, MD

Board of Advisors

Carl Heilman, MD
Ehab Hanna, MD
Dennis Kraus, MD
Peter Neligan, MD
Daniel Nuss, MD

Meeting Hours

REGISTRATION HOURS

Thursday, February 11, 2016
 Friday, February 12, 2016
 Saturday, February 13, 2016
 Sunday, February 14, 2016

East Foyer D-H

2:00 pm – 7:00 pm
 6:00 am – 7:30 pm
 6:00 am – 7:00 pm
 6:00 am – 12:30 pm

SPEAKER READY ROOM HOURS

Thursday, February 11, 2016
 Friday, February 12, 2016
 Saturday, February 13, 2016
 Sunday, February 14, 2016

Bourbon 10

2:00 pm – 7:00 pm
 5:30 am – 5:45 pm
 5:30 am – 5:45 pm
 6:30 am – 12:30 pm

EXHIBIT HALL/POSTER HOURS

Friday, February 12, 2016

9:00 am – 3:30 pm Hall Open
 6:00 pm – 7:30 pm Hall Open
 9:30 am – 10:00 am Break in Exhibit Hall
 12:00 pm – 1:00 pm Business Lunch for Members only
 12:00 pm – 1:00 pm Lunch for Non-Members in Exhibit Hall
 3:00 pm – 3:30 pm Refreshment Break in Exhibit Hall
 6:00 pm – 7:30 pm Welcome Reception in Exhibit Hall

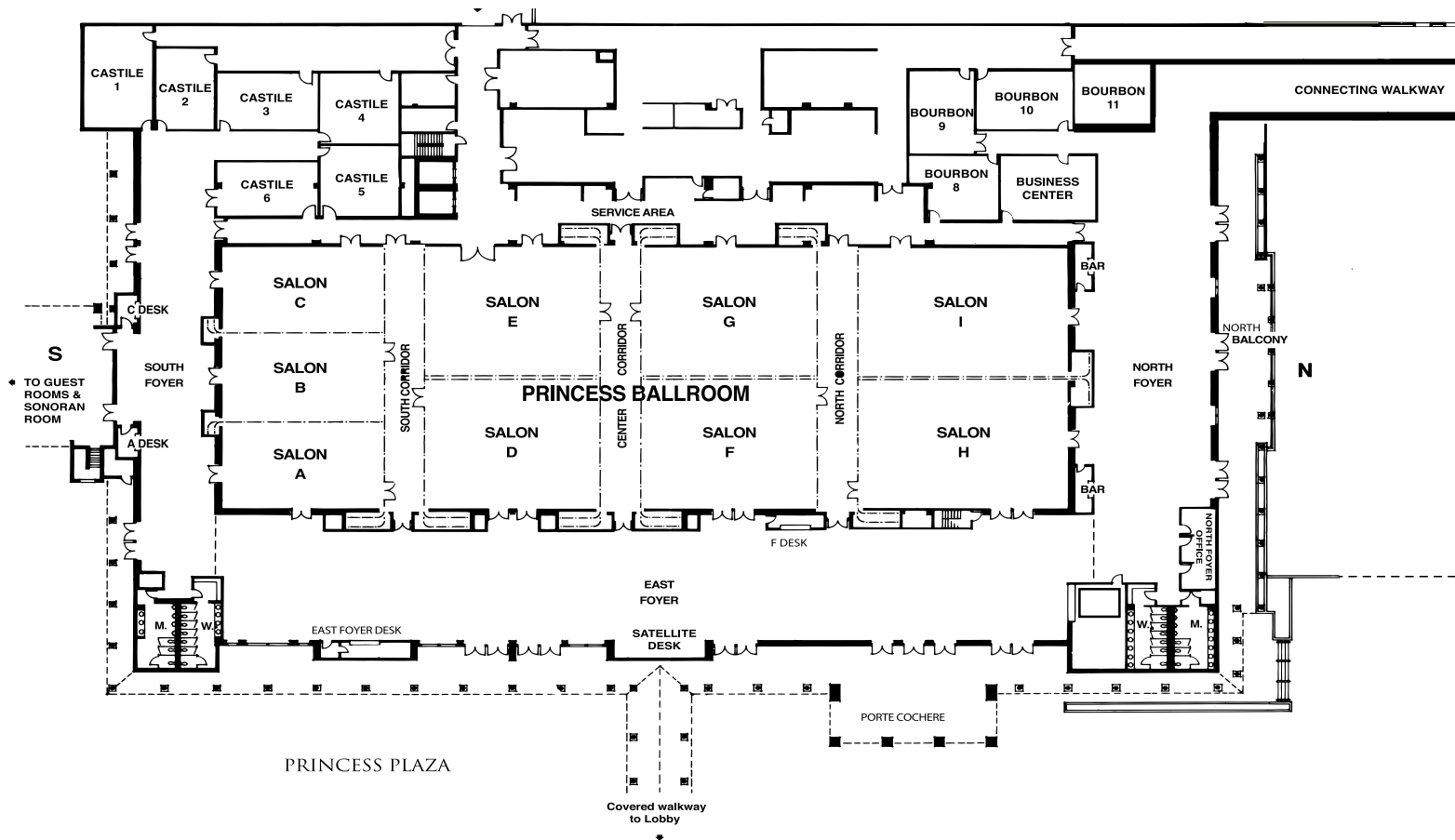
Saturday, February 13, 2016

9:00 am – 3:30 pm Hall Open
 9:30 am – 10:00 am Refreshment Break in Exhibit Hall
 12:00 pm – 1:00 pm Lunch/Poster Viewing
 3:00 pm – 3:30 pm Refreshment Break in Exhibit Hall

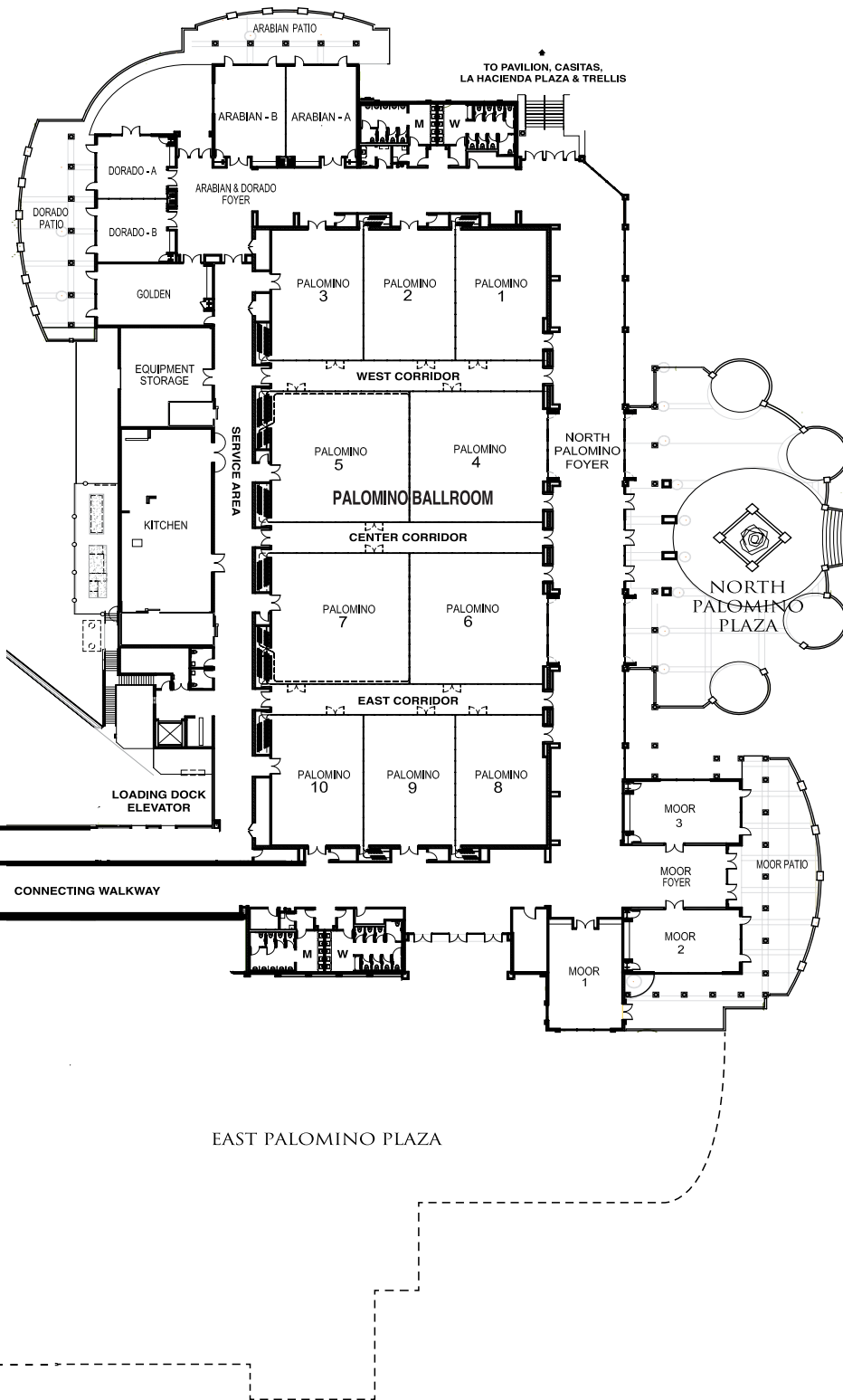
Sunday, February 22, 2016

8:00 am – 11:00 am Hall Open
 10:00 am – 10:30 am Refreshment Break in Exhibit Hall

Convention Hotel Floor Plan



Convention Hotel Floor Plan



PAST PRESIDENTS

- 1990** Paul J. Donald, MD
- 1991** Laligam N. Sekhar, MD
- 1992** Ivo P. Janecka, MD
- 1993** Peter G. Smith, MD, PhD
- 1994** Albert L. Rhoton, Jr., MD
- 1995** Hugh Curtin, MD
- 1996** Derald E. Brackmann, MD
- 1997** Ossam Al Mefty, MD
- 1998** Steven A. Newman, MD
- 1999** John P. Leonetti, MD
- 2000** Robert F. Spetzler, MD
- 2001** Ian T. Jackson, MD
- 2002** Vinod K. Anand, MD
- 2003** Jon H. Robertson, MD
- 2004** Jatin Shah, MD
- 2005** Patrick J. Gullane, MD
- 2006** Anil Nanda, MD
- 2007** Guy J. Petruzzelli, MD
- 2008** Franco DeMonte, MD
- 2009** Daniel Nuss, MD
- 2010** Peter Neligan, MD
- 2011** Dennis Kraus, MD
- 2012** Carl Heilman, MD
- 2013** Ehab Hanna, MD, FACS
- 2014** Michael Link, MD
- 2015** Carl Snyderman, MD, MBA

Keynote Lecturers

ERIC MEYHOFER

Uber Advance Technology Center

Friday, February 12, 8:30 am – 9:30 am

After Mechanical Engineering undergraduate studies at Carnegie Mellon University, Eric's primary focus became designing high performance robotics in Silicon Valley. Some of his previous work designing complex semiconductor handling robots resulted in multiple US patents for laser mapping. In 2004 Eric accepted a Faculty position at Carnegie Mellon's National Robotics Engineering Center. At the NREC he led the design and assembly of 'Crusher', an autonomous multi-million dollar ground combat vehicle. This vehicle's several thousand parts were successfully assembled and tested in only 10 weeks. At NREC Eric was also the Co-PI of the Automated Coating Removal System for the Air-Force. For this project he headed up the design and build of an autonomous robot that can stretch 40ft high, is omni-directional in motion, and has 10ft of reach. This robot has a 6kW laser at its end-effector and autonomously removes paint from fighter jets. Additionally Eric was the Co-PI on a wearable medical devices project that focused on improving the ECG process by incorporating Artificial Intelligence software in the data interpretation stage. In January 2015, after over a decade with CMU, Eric left the University and joined Uber to help create the Uber Advanced Technologies Center based in Pittsburgh Pa. Known as the UATC, this center is focusing on advanced safety, mapping, and autonomous technologies.



Eric Meyhofer

ALISON LEVINE

Team Captain of the First American Women's Everest Expedition & Author of the *New York Times* Bestseller *On the Edge: The Art of High-Impact Leadership*

Saturday, February 13, 8:30 am – 9:30 am

Levine, a world-renowned adventurer, shares lessons learned from various extreme environments—ranging from Mt Everest to the South Pole—and explains how they apply to business and beyond.

Her advice is flat-out contrarian and flies in the face of what you've been told by well-known management gurus and highly-paid executive coaches: encourage big egos, go backward – away from your goal, ignore the rules, ditch the plan, deprive yourself of sleep, and reward failure. But it works for her, and it can work for you too.

She provides a roadmap to help you scale whatever big peaks you aspire to climb—be they literal or figurative—by offering practical, humorous, and often unorthodox advice about how to reach your potential as a leader.

Levine served as the team captain of the first American Women's Everest Expedition, scaled the highest peak on every continent, and skied to both the North and South Poles—an accomplishment known as the Adventure Grand Slam, which fewer than forty people in the world have achieved.

"Standing on top of a mountain isn't important; it's about the journey...and the lessons you learn along the way." – Alison Levine

Levine spent four years as an adjunct professor at the United States Military Academy at West Point in the Department of Behavioral Sciences & Leadership. She is an advisor to the Thayer Leader Development Group at West Point and is on the board of the Coach K Center on Leadership and Ethics at Duke University. She is the founder of the Climb High Foundation, which trains jobless women in western Uganda to work as trekking guides in the Rwenzori Mountains. She is one of few who have presented at the World Economic Forum in Switzerland. Her best-selling book, *On the Edge: The Art of High Impact Leadership*, was released in January of 2014.



Alison Levine

Keynote Lecturers

BILL STRICKLAND

Sunday, February 14, 10:30 am – 11:15 am

Bill Strickland is the President and CEO of Manchester Bidwell Corporation and its subsidiaries, Manchester Craftsmen's Guild (MCG), and Bidwell Training Center (BTC).

Strickland is nationally recognized as a visionary leader who authentically delivers educational and cultural opportunities to students and adults within an organizational culture that fosters innovation, creativity, responsibility and integrity.

Throughout Strickland's distinguished career, he has been honored with numerous prestigious awards for his contributions to the arts and the community, including the coveted MacArthur "Genius" award. The past several decades have been dedicated to maintaining successful relationships with prominent national foundations and political leaders who share his passion and vision for a healthier future.



Bill Strickland

ACKNOWLEDGEMENT OF SUPPORTERS

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

DIAMOND

Stryker

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Aesculap, Inc.
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The North American Skull Base Society would like to recognize and thank the following companies for their support through in-kind donations:

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Stryker
TrueVision Systems
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Robert Behr, MD, PhD

Congress President 2016
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Los Angeles, CA

Ben Bleier, MD

Massachusetts Eye and Ear
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Fair Oaks, CA

Fred Boop, MD

St Jude Children's Research Hospital
Memphis, TN

James K. Byrd, MD

Georgia Regents University
Augusta, GA

Matthew Luke Carlson, MD

Mayo Clinic
Rochester, MN

Thank you to our valued members who have helped the NASBS continue to grow!

Below are the members who have sought out new members for our Society. Their commitment to the NASBS is the key to our success. We look forward to welcoming our new members at the new member reception on Saturday, February 13 at 6:00 pm and welcome all of you to help us reach even more Skull base programs in 2016-2017.

Saleem Abdulrauf
Siviero Agazzi
Charles Agbi
Ryojo Akagami
Michael J. Alexander
Osama Al-mefty
Vijay Anand
Norberto Andaluz
Moises Arriaga
Juan Barges-Coll
Pete Batra
Mark Bilsky
Matt Carlson
Ricardo Carrau
Roy Casiano
Douglas Chen
Franco DeMonte
Colin Driscoll
Jean Anderson Eloy
Ivan El-Sayed
James Evans
Juan Fernandez-Miranda
Samuel Fisher
James Chris Fleming

Adam Folbe
Brian Fowler
Bruce Gantz
Paul Gardner
Fred Gentili
Steven Giannotta
Kevin Gibbons
David Goldstein
John Golfinos
Bharat Guthikonda
Ehab Hanna
Carl Heilman
Edward Hepworth
Jason P. Hunt
Arif Janjua
Tyler James Kenning
Dennis Kraus
Ali Krisht
Varun Kshetry
Devyani Lal
Edward Laws
John Leonetti
Norbert Liebsch
Michael Link

Andrew Little
James Liu
Robert Malyapa
Lawrence Marentette
Sam J. Marzo
Madison Michael
John Milligan
Kris Moe
Jacques Morcos
Cherie Ann Nathan
Steven Newman
Daniel Nuss
Matthew Old
Bert O'Malley
Bradley Alan Otto
Martin Pham
Carlos Pinheiro-Neto
Vikram Prabhu
Daniel Prevadello
Christopher Rassekh
Shaan Raza
Pablo Recinos
Kesava Reddy
Vincent Resto

J. Thomas Roland
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Theodore H. Schwartz
Chandranath Sen
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Raj Sindwani
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San Francisco, CA

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Philadelphia, PA

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University of Louisville
New Orleans, LA

Trevor Hackman, MD

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CHAPEL HILL, NC

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G. Michael Lemole Jr, MD

University of Arizona
Tucson, AZ

John Leonetti, MD

Loyola University Medical Center
Maywood, IL

Alison Levine

Keynote Speaker
Author, Adventurer, and Mountaineer

Norbert Liebsch, MD, PhD

Massachusetts General Hospital
Boston, MA

Derrick Lin, MD

Massachusetts Eye and Ear
Boston, MA

Michael Link, MD

Mayo Clinic
Phoenix, AZ

Andrew S. Little, MD

Barrow Neurological Institute
Phoenix, AZ

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San Francisco, CA

Erin L. McKean, BS, MD, MBA

University of Michigan
Ann Arbor, MI

Diego Mendez-Rosito, MD

Instituto Nacional de Neurología y
Neurocirugía
Tlalpan, Mexico

Eric Meyhofer, MD

Principal, Uber Advance Technologies Center
Pittsburgh, PA

Madison Michael, MD

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Gustavo Nogueira, MD

Instituto De Neurologia De Curitiba
Curitiba, Brazil

Daniel Nuss, MD

Louisiana State University
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SAVE THE DATE

NASBS Skull Base Surgery SUMMER WORKSHOP

July 28-31, 2016 • LSU Health Sciences Center, New Orleans, LA



Faculty Listing

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Guys and Kings College Hospitals
London, England

Kenji Ohata, MD

Osaka City University
Osaka, Japan

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Carlos Pinheiro-Neto, MD, PhD

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University of North Carolina
Chapel Hill, NC

Schedule-at-a-Glance

FRIDAY, FEBRUARY 12, 2016

6:00 am – 7:30 pm	Registration Open	East Foyer D-H
6:45 am – 7:00 am	Continental Breakfast	Palomino East Foyer
7:00 am – 7:45 am	MASTER SURGEON SESSIONS	
	Master Surgeon 1: Approaches to the Cavernous Sinus	Palomino Ballroom 8
	Master Surgeon 2: Jugular Foramen Tumors and Paragangliomas	Palomino Ballroom 9
	Master Surgeon 3: Skull Base Meningiomas	Palomino Ballroom 10
	Master Surgeon 4: Endoscopic Skull Base Surgery – Beyond the Pituitary and Extended Approaches	Moor 2
	<i>The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Medtronic in support of this session.</i>	
8:00 am – 8:30 am	PRESIDENTIAL ADDRESS: Innovation & Creativity in Skull Base Surgery Carl Snyderman, MD, MBA	Salon H&I
8:30 am – 9:30 am	KEYNOTE LECTURE: Robotics and Disruption Eric Meyhofer, Uber Advance Technology Center	Salon H&I
9:30 am – 10:00 am	Refreshment Break in Exhibit Hall	Salon D-G
10:00 am – 11:00 am	PROFFERED PAPERS	
	Proffered Paper 1	Palomino Ballroom 8
	Proffered Paper 2	Palomino Ballroom 9
	Proffered Paper 3	Palomino Ballroom 10
	Proffered Paper 4	Moor 2
11:00 am – 12:00 pm	PANEL DISCUSSIONS	
	Panel Discussion 1: Controversies in the Management of Sinonasal Malignancy	Palomino Ballroom 8
	Panel Discussion 2: Treatment Options for Chordomas	Palomino Ballroom 9
	Panel Discussion 3: Optimal Treatment of Acoustic Neuroma	Palomino Ballroom 10
	Panel Discussion 4: Management of Vascular Issues in Skull Base Surgery	Moor 2
12:00 pm – 1:00 pm	Lunch in Exhibit Hall for Non Members Business Lunch for Members in Main Ballroom	Salon D-G Salon H&I
1:00 pm – 2:00 pm	PECHAKUCHA SESSIONS	
	PechaKucha 1: Innovation in Education	Palomino Ballroom 8
	PechaKucha 2: Operating Room of the Future	Palomino Ballroom 9
	<i>The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Leica Microsystems in support of this session.</i>	
	PechaKucha 4: Reconstruct This!	Moor 2
2:00 pm – 3:00 pm	PANEL DISCUSSIONS	
	Panel Discussion 5: Debate – Endoscopic vs. Transcranial Approaches for Meningiomas	Palomino Ballroom 8
	<i>The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Stryker in support of this session.</i>	
	Panel Discussion 6: Tumor Board - Pediatric Skull Base Tumors	Palomino Ballroom 9
	Panel Discussion 7: Cranial Nerve Injury: Prevention and Management	Palomino Ballroom 10
	Panel Discussion 8: Orbital Tumors and Approaches	Moor 2
3:00 pm – 3:30 pm	Refreshment Break in Exhibit Hall	Salons D-G

Schedule-at-a-Glance

3:30 pm – 5:00 pm **PROFFERED PAPERS**

Proffered Paper 5
Proffered Paper 6
Proffered Paper 7
Proffered Paper 8

Palomino Ballroom 8
Palomino Ballroom 9
Palomino Ballroom 10
Moor 2

5:00 pm – 5:45 pm

BRAINSTORMING SESSION 1: Design of Collaborative Trials
COACHING SESSION 1: Sellar/Parasellar Tumors
Media Training for Skull Base Surgeons – Nancy Snyderman, MD

Palomino Ballroom 8
Palomino Ballroom 9
Palomino Ballroom 10

6:00 pm – 7:30 pm

Welcome Reception in Exhibit Hall

Salons D-G

7:45 pm – 10:00 pm

Past President's Dinner (Invitation Only)

SATURDAY, FEBRUARY 13, 2016

6:00 am – 7:00 pm

Registration Open

East Foyer D-H

6:45 am – 7:00 am

Continental Breakfast

Palomino East Foyer

7:00 am – 7:45 am

MASTER SURGEON SESSIONS

Master Surgeon 5: Nuances of Acoustic Tumor: Achieving Best Facial Nerve and Hearing Outcomes

Palomino Ballroom 8

Master Surgeon 6: Transfacial Surgery for Skull Base Cancers: What is the Current Role?

Palomino Ballroom 9

Master Surgeon 7: Skull Base Surgery for Complex Intracranial Aneurysms

Palomino Ballroom 10

The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Mizuho America, Inc. in support of this session.

Master Surgeon 8: Nuances of Endoscopic Pituitary Tumor Removal – Achieving Best Endocrinological, Oncological and Visual Outcomes

Moor 2

8:00 am – 8:30 am

Best Papers & Posters Presentations

Salon H&I

8:30 am – 9:30 am

KEYNOTE LECTURE: On the Edge: The Art of High-Impact Leadership

Salon H&I

Alison Levine, An Adventurer, Explorer and Mountaineer

9:30 am – 10:00 am

Refreshment Break in Exhibit Hall

Salons D-G

10:00 am – 11:00 am

PROFFERED PAPERS

Proffered Paper 9
Proffered Paper 10
Proffered Paper 11
Proffered Paper 12

Palomino Ballroom 8
Palomino Ballroom 9
Palomino Ballroom 10
Moor 2

11:00 am – 12:00 pm

PANEL DISCUSSIONS

Panel Discussion 9: When GTR is Not the Goal

Palomino Ballroom 8

Panel Discussion 10: Sellar/Parasellar Tumors

Palomino Ballroom 9

Panel Discussion 11: Centers of Excellence: Is It Time?

Palomino Ballroom 10

Panel Discussion 12: Intracranial Hypertension

Moor 2

12:00 pm – 1:00 pm

Lunch & Poster Viewing in Exhibit Hall

Salons D-G

1:00 pm – 2:00 pm

PECHAKUCHA SESSIONS

PechaKucha 5: Quality Improvement Conference

Palomino Ballroom 8

PechaKucha 6: Global Challenges in Skull Base Surgery

Palomino Ballroom 9

PechaKucha 7: Hemostasis: Strategies & Techniques

Palomino Ballroom 10

The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Baxter Healthcare Corporation in support of this session.

PechaKucha 8: I Wish I Hadn't Done That! Complications & Bad Outcomes

Moor 2

Schedule-at-a-Glance

2:00 pm – 3:00 pm **PANEL DISCUSSIONS**

Panel Discussion 13: Complications of Radiation Therapy	<i>Palomino Ballroom 8</i>
Panel Discussion 14: Tumor Board: Temporal Bone	<i>Palomino Ballroom 9</i>
Panel Discussion 15: Controversies in the Management of Craniopharyngioma	<i>Palomino Ballroom 10</i>
Panel Discussion 16: Controversies in Petroclival Tumors	<i>Moor 2</i>

3:00 pm – 3:30 pm **Refreshment Break in Exhibit Hall** *Salons D-G*

3:30 pm – 5:00 pm **PROFFERED PAPERS**

Proffered Paper 13	<i>Palomino Ballroom 8</i>
Proffered Paper 14	<i>Palomino Ballroom 9</i>
Proffered Paper 15	<i>Palomino Ballroom 10</i>
Proffered Paper 16	<i>Moor 2</i>

5:00 pm – 5:45 pm **BRAINSTORMING SESSION 2:** *Palomino Ballroom 8*
Choosing the Right Metrics (Metrics for Assessing Value in Skull Base Surgery)
COACHING SESSION 2: *Palomino Ballroom 9*
Posterior Fossa Tumors (Acoustic Neuroma, MD, Cerebellopontine Angle, MD, Petroclival)

6:00 pm – 7:00 pm **New Member Reception with Leadership** (Invitation Only)

7:00 pm – 9:30 pm **NASBS Western at Copper Canyon**

SUNDAY, FEBRUARY 14, 2016

6:00 am – 12:30 pm **Registration Open** *East Foyer D-H*

6:45 am – 7:00 am **Continental Breakfast** *Palomino East Foyer*

7:00 am – 7:45 am **Committee Meetings**

7:45 am – 8:00 am **Transition Break**

8:00 am – 9:00 am **PROFFERED PAPERS**

Proffered Paper 17	<i>Palomino Ballroom 8</i>
Proffered Paper 18	<i>Palomino Ballroom 9</i>
Proffered Paper 19	<i>Palomino Ballroom 10</i>
Proffered Paper 20	<i>Moor 2</i>

9:00 am – 10:00 am **PANEL DISCUSSIONS**

Panel Discussion 17: Systematic Review of Sinonasal Malignancy/Best Treatment/Pre-Operative Chemo/Radiation	<i>Palomino Ballroom 8</i>
Panel Discussion 18: Tumor Board: Clival Neoplasms	<i>Palomino Ballroom 9</i>
Panel Discussion 19: Skull Base Economics	<i>Palomino Ballroom 10</i>
Panel Discussion 20: Controversies in the Management of Trigeminal Schwannomas	<i>Moor 2</i>

10:00 am – 10:30 am **Refreshment Break in Exhibit Hall** *Salon D-G*

10:30 am – 11:15 am **KEYNOTE LECTURE: Make the Impossible Possible** *Salon H&I*
 Bill Strickland, CEO of Manchester Bidwell Corporation, Social Architect, Community Leader, and Visionary

11:15 am – 12:15 pm **3D Video Techniques** *Salon H&I*
 MODERATOR: Juan Fernandez-Miranda, MD
 SPEAKERS: Mustafa Baskaya, MD; William Couldwell, MD, PhD; James Liu, MD

12:25 pm – 12:30 pm **Awards and Closing Remark**

Pre-Meeting Course

Open and Endoscopic Skull Base Surgery

February 10-11, 2016 • Mayo Clinic, Scottsdale, Arizona

Mayo Clinic Building on the Shea Campus & Collaborative Research Building, Scottsdale, AZ

COURSE DIRECTORS: Devyani Lal, MD & Bernard Bendok, MD, Mayo Clinic, Scottsdale, AZ

The pre-meeting dissection workshop of the 26th Annual NASBS Meeting offers participants with choices between hands-on cadaver dissection sessions, lecture sessions with hands-on exercises and web-based learning. Modules will take participants through open and endoscopic exercises to the central, lateral and posterior skull base.

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

1. Demonstrate knowledge of decision making for Rx of skull base lesions.
2. Apply open and endoscopic surgical techniques in the Rx of skull base tumors.
3. Understand the nuances of vascular anatomosis.
4. Explain various ways of reconstruction of the skull base to avoid complications.

SHUTTLES

Wednesday, February 10, 2016

- 6:30 am: Shuttle will pick up attendees at the Fairmont Scottsdale Princess Front Drive Bus Circle and bring to the Mayo Clinic and drop off at the Johnson Building.
- 6:30 pm: Shuttle will pick up attendees at the Mayo Clinic at the Johnson Building and bring to the Fairmont Scottsdale Princess.

Thursday, February 11, 2016

- 6:30 am: Shuttle will pick up attendees at the Fairmont Scottsdale Princess Front Drive Bus Circle and bring to the Mayo Clinic and drop off at the Johnson Building.
- 5:30 pm: Shuttle will pick up attendees at the Mayo Clinic at the Johnson Building and bring to the Fairmont Scottsdale Princess.

TRACK 1: Two-Day Hands-On Anatomical Dissection with Lectures

This track features anatomical hands-on dissections emphasizing open and endoscopic skull base surgery. Attendees will also attend all lectures and prosections on open and endoscopic skull base surgery as well as Case Studies and Tumor Board presentations.

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION Pre-Meeting Course (Hands-On)

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 16.50 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Of the AMA PRA Category 1 Credits™ listed above, a maximum of 16.50 credits meet the requirements for Self-Assessment.



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AMERICAN COLLEGE OF SURGEONS
DIVISION OF EDUCATION
Accredited with Commendation by the
Accreditation Council for Continuing Medical Education

Disclosure Information

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

Pre-Meeting Course

TRACK 2: Two-Day Surgical Simulation Exercises with Lectures


This track features hands-on surgical simulation exercises emphasizing open and endoscopic skull base techniques on Set-up and New Technology, Bone and Soft Tissue Dissection, Skull Base Reconstruction, Microvascular and Neural Repair, and Internal Carotid Artery Injury. Attendees will also attend all lectures and prosections on open and endoscopic skull base surgery as well as Case Studies and Tumor Board presentations.

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION
Pre-Meeting Course (Lecture-Based)


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.

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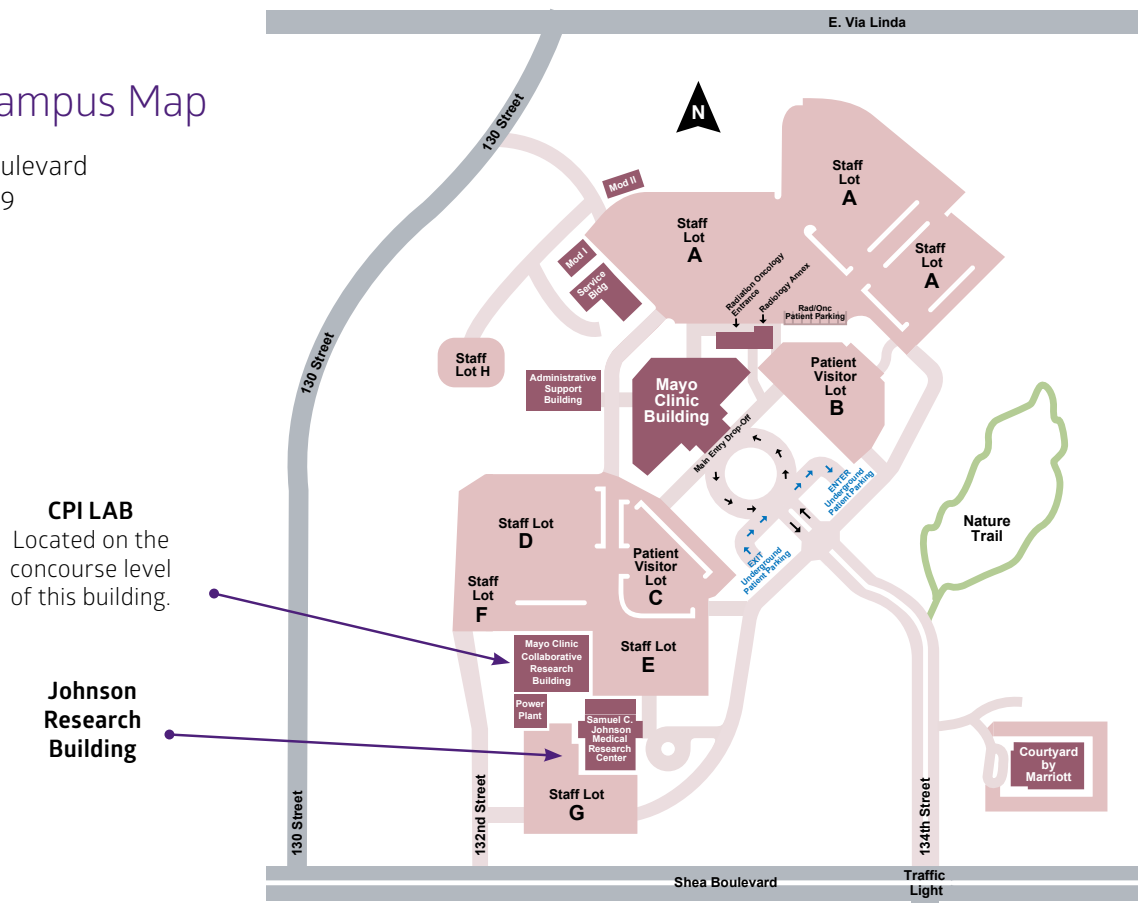
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Disclosure Information

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Mayo Clinic Scottsdale Campus Map

13400 East Shea Boulevard
Scottsdale, AZ 85259



Pre-Meeting Course

COURSE SCHEDULE

Topics, Faculty, and Rooms Subject to Change

WEDNESDAY, FEBRUARY 10, 2016

7:00 am – 7:45 am **Registration & Breakfast**

7:45 am – 8:00 am **Course Overview** – *Devyani Lal, MD*

MODULE 1: Sellar/Parasellar/Suprasellar Approaches

8:00 am – 8:30 am **3D Anatomy** – *Jeffrey Sorenson, MD*

8:30 am – 9:30 am **Prosections**

8:30 am: Endoscopic Endonasal Sellar-Suprasellar Approach – *Bernard Bendok, MD & Peter Hwang, MD*

9:00 am: Transcranial Suprasellar Approach – *Vikram Prabhu, MD & Christopher Rassekh, MD*

9:30 am – 10:00 am **Break & Simulation Stations**

10:00 am – 12:00 pm **TRACK 1: Anatomical Dissection in Lab**

PROCTORS: James Liu, MD; Jean Anderson Eloy, MD; Naresh Patel, MD; Silviero Agazzi, MD, MBA; Mithun Sattur, MD; Paul Gardner, MD; Carl Snyderman, MD, MBA; Zara Patel, MD; Ben Bleier, MD; Gustavo Noriega, MD; David Barrs, MD

10:00 am – 10:30 am **TRACK 2: Lecture - Setting-Up a Skull Base Program: Practical Tips** – *Ameet Singh, MD*

10:30 am – 11:00 am **TRACK 2: Lecture - Technology in Skull Base Surgery: Pitfalls & Optimization** – *Carlos Ebert, MD*

12:15 pm – 1:15 pm **Lunch with Case Presentations**

MODERATORS: Devyani Lal, MD & James Liu, MD

SPEAKERS: Silviero Agazzi, MD, MBA; David Barrs, MD; Lori Lemmonier, MD; Thomas Nagal, MD; Carl Snyderman, MD, MBA

MODULE 2: Anterior Cranial Base

1:15 pm – 1:45 pm **3D Anatomy** – *Jeffrey Sorenson, MD*

1:45 pm – 2:45 pm **Prosections**

1:45 pm: Anterior Cranial Base Resection: Subfrontal Approach with Pericranial Flap – *Jean Anderson Eloy, MD & James Liu, MD*

2:15 pm: Endoscopic Anterior Cranial Base Resection with Nasoseptal Flap – *Devyani Lal, MD & Naresh Patel, MD*

2:45 pm – 3:00 pm **Break & Simulation Stations**

3:00 pm – 5:00 pm **TRACK 1: Anatomical Dissection in Lab**

PROCTORS: Vik Prabhu, MD; Chris Rassekh, MD; Peter Hwang, MD; Silviero Agazzi, MD, MBA; Mithun Sattur, MD; Paul Gardner, MD; Carl Snyderman, MD, MBA; Ameet Singh, MD; Adam Folbe, MD; Gustavo Noriega, MD; David Barrs, MD

3:00 pm – 3:30 pm **TRACK 2: Lecture - Micro-Dissection Techniques: Tips and Pearls** – *Murali Guthikonda, MD*

3:30 pm – 4:00 pm **TRACK 2: Lecture - Powered Instrumentation in Skull Base Surgery** – *Zara Patel, MD*

5:00 pm – 5:30 pm **Course Review** – *Devyani Lal, MD*

5:30 pm **Wine & Cheese Reception**

Pre-Meeting Course

COURSE SCHEDULE

Topics, Faculty, and Rooms Subject to Change

THURSDAY, FEBRUARY 11, 2016

7:00 am – 8:00 am **Registration & Breakfast**

MODULE 3: Middle Cranial Fossa, Infratemporal Skull Base

8:00 am – 8:30 am **3D Anatomy** – *Jeffrey Sorenson, MD*

8:30 am – 9:30 am **Prosections**

8:30 am: Endoscopic Endonasal Transpterygoid/Transmaxillary Approach to the Middle Cranial Fossa – *Paul Gardner, MD & Carl Snyderman, MD, MBA*

9:00 am: Lateral Subtemporal Approach to the Middle Cranial Fossa – *Amol Bhatki, MD & James Chandler, MD*

9:30 am – 10:00 am **Break & Simulation Stations**

10:00 am – 12:00 pm **TRACK 1: Anatomical Dissection in Lab**

PROCTORS: Raj Shrivastava, MD; Adam Zanation, MD; Amir Dehdashti, MD; Siviero Agazzi, MD, MBA; Paul Gardner, MD; Carl Snyderman, MD, MBA; Mark Wiet, MD; Erin O'Brien, MD; Gustavo Noriega, MD; David Barrs, MD

10:00 am – 10:30 am **TRACK 2: Lecture - Reconstructive Considerations in Skull Base Surgery** – *Dan Fliss, MD*

10:30 am – 11:00 am **TRACK 2: Lecture - Tools and Techniques in Anterior Skull Base Reconstruction** – *Ben Bleier, MD*

12:15 pm – 1:15 pm **Lunch with Tumor Board Conference**

MODERATORS: Joseph Hoxworth, MD & Devyani Lal, MD

SPEAKERS: Siviero Agazzi, MD, MBA; David Barrs, MD; Paul Gardner, MD; Thomas Nagel, MD; Erin O'Brien, MD; Mark Wiet, MD

MODULE 4: Transclival Approaches

1:15 pm – 1:45 pm **3D Anatomy** – *Jeffrey Sorenson, MD*

1:45 pm – 2:45 pm **Prosections**

1:45 pm: Transpetrosal/Far Lateral Approach to the Clivus – *Sam Marzo, MD & Raj Shrivastava, MD*

2:15 pm: Endoscopic Endonasal Transclival Approach – *Amir Dehdashti, MD & Adam Zanation, MD*

2:45 pm – 3:00 pm **Break & Simulation Stations**

3:00 pm – 5:00 pm **TRACK 1: Anatomical Dissection in Lab**

PROCTORS: Amol Bhatki, MD; James Chandler, MD; Vik Prabhu, MD; Jean Anderson Eloy, MD; James Liu, MD; Siviero Agazzi, MD, MBA; Mark Wiet, MD; Lori Lemmonier, MD; Carlos Ebert, MD; ; Gustavo Noriega, MD; David Barrs, MD

3:00 pm – 3:30 pm **TRACK 2: Lecture - Complications in Skull Base Surgery** – *Adam Folbe, MD*

3:30 pm – 4:00 pm **TRACK 2: Lecture - Handling Internal Carotid Artery Injury** – *Paul Gardner, MD*

5:00 pm – 5:30 pm **Course Review** – *Devyani Lal, MD*

5:30 pm **Adjournment**

FRIDAY, FEBRUARY 12, 2016

6:45 am – 7:00 am **Continental Breakfast**

Palomino East Foyer

6:00 am – 7:30 pm **Registration Open**

East Foyer D-H

7:00 am – 7:45 am **MASTER SURGEON SESSIONS**

MASTER SURGEON 1: Approaches to the Cavernous Sinus

Palomino 8

MODERATOR: Juan Fernandez-Miranda, MD

SPEAKERS: William Couldwell, MD, PhD; Ali Krisht, MD; Harry van Loveren, MD

The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Zimmer Biomet in support of this session.

- The Art of Mobilizing The Walls of the Cavernous Sinus – *Harry van Loveren, MD*
- How to Achieve Successful Surgery in the Cavernous Sinus – *Ali Krisht, MD*
- Endoscopic Endonasal Intracavernous Surgery – *Juan Fernandez-Miranda, MD*
- Cavernous Sinus Exenteration / En-Bloc Resection – *William Couldwell, MD, PhD*

This session will cover different surgical techniques and approaches to the cavernous sinus, including mobilization of the cavernous sinus walls, transcranial intracavernous routes, endoscopic endonasal intracavernous surgery, and cavernous sinus exenteration.

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

1. Identify different surgical approaches to the cavernous sinus including en-bloc removal of the cavernous sinus.
2. Distinguish transcranial approaches to the walls of the cavernous sinus from true intracavernous sinus surgery.
3. Integrate endoscopic endonasal approaches to the cavernous sinus into the surgeon's armamentarium.

MASTER SURGEON 2: Jugular Foramen Tumors and Paragangliomas

Palomino 9

MODERATOR: Michael Gleeson, MD

SPEAKERS: James Netterville, MD; Rupert Obholzer, MD; Jon Robertson, MD

- Introduction – *Michael Gleeson, MD*
- Multi-disciplinary Teams and Management – *Rupert Obholzer, MD*
- Jugular Foramen Tumours - The Neurosurgical Perspective – *Jon Robertson, MD*
- Jugular Foramen Tumours - The Otologists Perspective – *James Netterville, MD*
- Case Discussion – *Michael Gleeson, MD*

The speakers at this session will address the expanding need for multi-disciplinary management of patients with paragangliomas that has become necessary in the light of advances in molecular medicine. Indications and contraindications for active management will be discussed together with common pitfalls and their avoidance. This session will appeal to all lateral skull base and posterior fossa surgeons.

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

1. Formulate an appropriate management.
2. Recognize the importance of an integrated team of clinicians.
3. Appraise and prioritize the needs of patients with jugular foramen tumors.

MASTER SURGEON 3: Skull Base Meningiomas

Palomino 10

MODERATOR: Michael McDermott, MD

SPEAKER: Chandranath Sen, MD

The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Elekta, Inc. in support of this session.

- Anterior Clinoidal Meningiomas: Complications and Lessons Learned – *Chandranath Sen, MD*
- Tuberculum Meningioma Surgery Complications: Case Presentations and Discussion – *Michael McDermott, MD*
- Petroclival Meningiomas: Lessons Learned – *Gerardo Guinto, MD*

Using extensive case discussions, the surgeons will discuss the challenges of treating meningiomas in different areas of the skull base (anterior clinoid, tuberculum, and petroclival region), with an emphasis on avoiding complications.

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

1. Discuss criteria for choosing a particular surgical approach.
2. Recall major complications of each approach.
3. Develop treatment algorithms for meningiomas of the skull base.

MASTER SURGEON 4: Endoscopic Skull Base Surgery – Beyond the Pituitary and Extended Approaches

Moor 2

MODERATOR: Adam Zanation, MD

SPEAKERS: Vijay Anand, MD; Paul Gardner, MD; Daniel Prevedello, MD

The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Medtronic Surgical Technologies in support of this session.

- Introduction – *Adam Zanation, MD*
- Intradural Tumors Beyond the Sella – *Daniel Prevedello, MD*
- Reconstruction Beyond Sellar Defects – *Vijay Anand, MD*
- Addressing Complications in ExtraSellar Skull Base Surgery – *Paul Gardner, MD*

This session provide the advanced skull base surgeon tips and pearls related to approach, resections and reconstruction of intradural skull base tumor dissections beyond the pituitary.

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

1. Understand the risk of more advance skull base surgery.
2. Know that vascular flaps make the most difference in outcomes here compared with pituitary surgery.
3. Employ approaches to minimize complications during the learning curve.

8:00 am – 8:30 am	PRESIDENTIAL ADDRESS: Innovation & Creativity in Skull Base Surgery SPEAKER: Carl Snyderman, MD, MBA	<i>Salon H&I</i>
8:30 am – 9:30 am	KEYNOTE LECTURE: Robotics and Disruption INTRODUCTION: Carl Snyderman, MD, MBA KEYNOTE SPEAKER: Eric Meyhofer, Uber Advance Technology Center	<i>Salon H&I</i>
9:30 am – 10:00 am	Refreshment Break in Exhibit Hall	<i>Salon D-G</i>
10:00 am – 11:00 am	PROFFERED PAPER SESSIONS 1-4	

Proffered Papers 1

Palomino 8

MODERATORS: Carlos Pinheiro-Neto, MD, PhD & Zac Litvack, MD

001: SKULL BASE AND INTRACRANIAL INVASION PATTERNS AND SURVIVAL OUTCOMES OF NON-MELANOMA SKIN CANCERS - Yusuf Dundar, MD, [Richard B Cannon, MD](#), Marcus Monroe, ASS, PROF, Luke Buckman, ASS, PROF, Jason P Hunt, ASOCPROF; The University of Utah

002: POSITIVE CORRELATION OF HYAMS HISTOPATHOLOGIC GRADING IN ESTHESIONEUROBLASTOMA TO PET/CT ENHANCEMENT AND SURVIVAL RATES - [Rachel E Arffa, MD](#)¹, Nadieska Caballero, MD¹, Donald C Lanza, MD¹, Alla Solyar, MD¹, Adam Rourke, DO¹, Kern Davis²; ¹Sinus & Nasal Institute of Florida, ²St. Anthony's Hospital

003: SURGICAL TREATMENT OF ESTHESIONEUROBLASTOMA: MAJOR COMPLICATION RATES, PROGRESSION FREE AND OVERALL SURVIVAL - [Aileen Wertz, MD](#), Todd Hollon, MD, Lawrence Marentette, MD, Stephen Sullivan, MD, Erin McKean, MD; University of Michigan

004: CARCINOMAS OF THE NASAL CAVITY AND PARANASAL SINUSES: IMPACT OF HISTOLOGY ON NATIONAL TRENDS IN INCIDENCE AND SURVIVAL - [Daniel Gerry, MD](#)¹, Eric Lentsch, MD², James K Byrd, MD¹; ¹Georgia Regents University, ²Medical University of South Carolina

005: COMBINED APPROACHES TO THE SKULL BASE FOR INTRACRANIAL EXTENSION OF TUMORS VIA PERINEURAL SPREAD CAN IMPROVE PATIENT OUTCOMES - [Sheri K Palejwala, MD](#), Jonnae Barry, MD, Crystal N Rodriguez, BS, Chandni A Parikh, MS, Stephen A Goldstein, MD, G. Michael Lemole, Jr., MD; University of Arizona

006: ENDOSCOPIC CRANIOFACIAL RESECTIONS AND ENDOSCOPIC-ASSISTED CRANIOFACIAL RESECTIONS FOR LOCALLY ADVANCED ANTERIOR SKULL BASE TUMORS. EARLY EXPERIENCE OF A CANADIAN TERTIARY REFERRAL CENTRE - [Javier Ospina, MD](#), Eli Akbari, MD, Arif Janjua, MD, FRCSC, Peter Gooderham, MD, FRCSC; Vancouver General Hospital - University of British Columbia

Proffered Papers 2

Palomino 9

MODERATORS: Christopher J. Farrell, MD & Eugene Yu, MD

007: ENDOSCOPIC ENDONASAL APPROACH FOR CLIVAL CHORDOMAS: 12 YEARS OF EXPERIENCE FROM A LARGE SKULL BASE REFERRAL CENTER - [Georgios A Zenonos, MD](#)¹, Kenan Alkhalili, MD¹, Maria Koutourousiou, MD², Nathan T Zwagerman, MD¹, David Panczykowski, MD¹, Eric W Wang, MD³, Elizabeth C Tyler-Kabara, MD, PhD², Juan C Fernandez-Miranda, MD¹, Carl H Snyderman, MD, MBA³, Paul A Gardner, MD¹; ¹University of Pittsburgh Department of Neurosurgery, ²University of Louisville Department of Neurosurgery, ³University of Pittsburgh Department of Otorhinolaryngology

008: PROSPECTIVE VALIDATION OF MOLECULAR MARKERS PREDICTING OVERALL PROGRESSION FREE SURVIVAL, AND PROGRESSION FREE SURVIVAL AFTER RADIATION IN CLIVAL CHORDOMAS. - [Georgios A Zenonos, MD](#)¹, Kenan Alkhalili, MD¹, Maria Koutourousiou, MD², David Panczykowski, MD¹, Yue-Fang Chang, PhD³, Nathan T Zwagerman, MD¹, Juan-Carlos Fernandez-Miranda, MD¹, Eric W Wang, MD⁴, Carl H Snyderman, MD, MBA⁴, Ronald L Hamilton, MD⁵, Raja Seethala, MD⁵, Paul A Gardner, MD²; ¹University of Pittsburgh Department of Neurosurgery, ²University of Louisville Department of Neurosurgery, ³University of Pittsburgh Department of Biostatistics, ⁴University of Pittsburgh Department of Otorhinolaryngology, ⁵University of Pittsburgh Department of Pathology

009: THE SIGNIFICANCE OF CLOSE MARGINS ON OUTCOME OF PATIENTS WITH ADENOID CYSTIC CARCINOMA OF THE SKULL BASE: AN INTERNATIONAL COLLABORATIVE STUDY - Moran Amit¹, Shorook Na'ara¹, Leonor Trejo-leider², Naomi Ramer³, Ilana Ramer³, Abib Agbetoba³, Brett Miles³, Yang Xinjie⁴, Lei Delin⁴, Kristine Bjoerndal⁵, Christian Godballe⁵, Thomas Mücke⁶, Wolff Klaus-Dietrich⁶, André Eckardt⁷, Chiara Copelli⁸, Enrico Sesenna⁸, Snehal Patel⁹, Ian Ganly⁹, [Ziv Gil](#)¹; ¹RAMBAM HEALTH CARE CAMPUS, ²Tel Aviv Medical Center, ³The Mount Sinai School of Medicine, New York, ⁴School of Stomatology, the Fourth Military Medical University, P. R. China, ⁵Odense University Hospital Denmark, ⁶Technische Universität München, Germany, ⁷Hannover Medical School, Hannover, Germany, ⁸University-Hospital of Parma, Italy, ⁹Memorial Sloan Kettering Cancer Center, NY, NY, USA

010: CLIVAL CHORDOMA MANAGEMENT: A SINGLE CENTRE EXPERIENCE - [Samir A Matloob, MBBS, MRCS](#), Haleema A Nasir, David Choi, MBChB, MA, FRCS, PhD; National Hospital for Neurology and Neurosurgery

011: ENDOSCOPIC ENDONASAL MANAGEMENT FOR VENTRAL SKULL BASE METASTATIC TUMORS - [André Beer-Furlan](#), Ali O Jamshidi, Ralph Abi-Hachem, Bradley Otto, Ricardo L Carrau, Daniel M Prevedello; The Ohio State University Wexner Medical Center

012: RETROSPECTIVE REVIEW OF SURGICAL AND ADJUVANT TREATMENT MODALITIES THAT AFFECT SKULL BASE CHORDOMA RECURRENCE RATES - [Tiffany A Glazer, MD](#), Lawrence J Marentette, MD, Stephen E Sullivan, MD, Erin L McKean, MD, MBS; University of Michigan

Proffered Papers 3

Palomino 10

MODERATORS: Shaan M. Raza, MD & Raj Sindwani, MD, FSCRC

013: LONG-TERM RISK OF RECURRENCE AND REGROWTH AFTER GROSS TOTAL AND SUBTOTAL RESECTION OF SPORADIC VESTIBULAR SCHWANNOMA - [Hirofumi Nakatomi, MD](#)¹, Jeffrey T Jacob², Matthew Carlson², Driscoll L Colin², Michael Ebersold², Stephen Harner², Micheal Link²; ¹University of Tokyo, ²Mayo Clinic, Rochester

014: MIDDLE FOSSA APPROACH FOR RESECTION OF VESTIBULAR SCHWANNOMAS: SURGICAL RESULTS IN THE RADIOSURGERY ERA - [Jennifer Kosty, MD](#)¹, Vincent DiNapoli, MD, PhD¹, Yair Gozal, MD, PhD¹, Smruti Patel, MD¹, Justin Golub, MD², Adam Goodale, MD¹, Norberto Andaluz, MD¹, Shawn Stevens¹, Myles Pensak, MD¹, Mario Zuccarello, MD¹, Ravi N Samy, MD¹; ¹University of Cincinnati Medical Center, ²Columbia University Medical Center

015: SURGERY OF LARGE AND GIANT VESTIBULAR SCHWANNOMA – RESULTS & TIPS - [Eiji Kohmura, MD, PhD](#); Department of Neurosurgery, Kobe University Graduate School of Medicine

016: NEXT-GENERATION SEQUENCING OF SPORADIC SCHWANNOMAS REVEALS CRITICAL IMPORTANCE OF NF2 ALTERATION - [Pankaj Agarwalla, MD¹](#), Wenyu L Bi, MD, PhD², William Gibson³, Shakti Ramkissoon, MD, PhD², Steven Schumacher³, Jeremiah Wala³, Michael Biggs, MD⁴, Anat Stemmer-Rachamimov, MD, PhD¹, Frederick Barker, MD¹, Robert Martuza, MD¹, Peleg Horowitz, MD, PhD⁵, Ian Dunn, MD², Rameen Beroukhim, MD, PhD³; ¹Massachusetts General Hospital, ²Brigham and Woman's Hospital, ³Dana-Farber Cancer Institute, ⁴University of Sydney, ⁵MD Anderson Cancer Center

017: PRESENTATION AND CLINICAL COURSE OF ASYMPTOMATIC INCIDENTAL VESTIBULAR SCHWANNOMAS - [Katherine A Lees](#), Brian A Neff, MD, Colin L Driscoll, Michael J Link, Matthew L Carlson, MD; Mayo Clinic

018: CYSTIC VESTIBULAR SCHWANNOMAS HAVE SIMILAR SURGICAL OUTCOMES AND RECURRENCE RATES AS SOLID VESTIBULAR SCHWANNOMAS - [Rami O Almefty, MD¹](#), David S Xu, MD¹, Michael A Mooney, MD¹, Andrew Montoure, MD², Stephen W Coons, MD¹, Randall W Porter, MD¹, Robert F Spetzler, MD¹; ¹Barrow Neurological Institute, ²Medical College of Wisconsin

Proffered Papers 4

Moor 2

MODERATORS: Carlos David, MD & Bradford A. Woodworth, MD

019: MANAGING ARTERIAL INJURY IN ENDOSCOPIC SKULL BASE SURGERY. CASE SERIES AND REVIEW OF THE LITERATURE - [Alicia Del Carmen Becerra Romero, PhD](#), Jagath Lal Gangadharan, MD, Evan Bander, BA, Yves Gobin, MD, Vijay Anand, MD, Theodore Schwartz, MD; Department of Neurological Surgery, Otolaryngology, Neuroscience and Radiology, Weill Cornell Medical College, New York-Presbyterian Hospital, New York, New York

021: PREOPERATIVE PROTECTIVE ENDOVASCULAR STENTING FOLLOWED BY SURGERY FOR MANAGEMENT OF THE CERVICAL COMMON AND INTERNAL CAROTID ARTERY WITH TUMOR ENCASEMENT - Michael R Markiewicz, MD, DDS, MPH, [Phillip Pirgousis, MD, DMD](#), Anthony Bunnell, MD, DMD, Curtis Bryant, MD, James C Cunningham, MD, Roi Dagan, MD, Sukhwinder J Sandhu, MD, Daniel A Siragusa, MD, Rui Fernandes, MD, DMD; University of Florida College of Medicine Jacksonville

022: COMPARISON OF THE EFFECTIVENESS OF OPTIC STRUT AND TUBERCULUM SELLAE AS RADIOLOGIC LANDMARKS IN DIAGNOSING PARAOLIVARY ANEURYSMS WITH CT ANGIOGRAPHY - [Chih-Hsiang Liao, MD¹](#), Sanford PC. Hsu, MD²; ¹Taipei Veterans General Hospital, ²Dept. of Neurosurgery, Taipei Veterans General Hospital

023: ANGIO NEGATIVE SPONTANEOUS SUBARACHNOID HEMORRHAGE: COST BENEFIT ANALYSIS - Edward Yap¹, Mark Abumoussa², [Adeolu Olasunkanmi¹](#), Deanna Sasaki-Adams¹; ¹UNC Hospitals, ²UNC School of Medicine

024: MODIFIED FAR LATERAL APPROACH FOR POSTERIOR CIRCULATION ANEURYSM. AN INSTITUTIONAL EXPERIENCE - Subhas Konar, [Tanmoy Maiti](#), Anil Nanda; LSUHSC, Shreveport

11:00 am – 12:00 pm PANEL DISCUSSIONS

PANEL DISCUSSION 1: Controversies in the Management of Sinonasal Malignancy

Palomino 8

MODERATOR: Eric Wang, MD

SPEAKERS: Roy Casiano, MD; Ziv Gil, MD, PhD; James Palmer, MD

- Staging and Management of the Neck in Sinonasal Malignancies – *Ziv Gil, MD, PhD*
- Extent of Resection: When to Perform a Unilateral v. Bilateral v. No Skull Base Resection – *Roy Casiano, MD*
- Postoperative Care - Short and Long Term Issues of Surveillance and Collateral Damage – *James Palmer, MD*
- Selecting Treatment Strategies for Sinonasal Malignancies: The Effect of Pathology, Tumor Extension, Prior Interventions and Comorbidities – *Eric Wang, MD*

This panel will address controversial topics in the current management of sinonasal malignancies for skull base surgeons. Topics addressed will include patient selection, staging and management of the neck, extent of resection and postoperative care.

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

1. Compare treatment options for sinonasal malignancy based upon tumor type and extent of disease.
2. Assess and manage neck disease in sinonasal cancer.
3. Choose appropriate degrees of surgical resection.
4. Articulate appropriate post-operative surveillance and management of these patients.

PANEL DISCUSSION 2: Treatment Options for Chordomas

Palomino 9

MODERATOR: Zachary Litvack, MD

SPEAKERS: Sebastien Froelich, MD; Norbert Liebsch, MD; Laligam Sekhar, MD

- Role of Complete vs. Palliative Resection for Craniocervical Chordoma – *Laligam Sekhar, MD*
- Endoscopic Resection of Craniocervical Chordoma – *Sebastien Froelich, MD*
- State of the Art - Surgical Resection and Radiation Therapy of Craniocervical Chordoma – *Norbert Liebsch, MD*
- Difficult Case Review - Panel Debate on Management of Chordoma – *Zachary Litvack, MD & Panelists*

Despite advances in surgical and radiation therapy techniques, chordoma of the cranio-cervical junction remains a difficult lesion to manage due to its locally invasive nature and high incidence of recurrence. This session focuses on a multi-modal approach to management of these lesions, combining the best of open and endoscopic resection with the newest radiation therapy modalities. We encourage surgeons and radiation-oncologists to attend this session, and bring their difficult cases for roundtable discussion.

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

1. Demonstrate knowledge of the management options for treatment of chordoma.
2. Formulate a multi-modal surgical and radiation treatment plan for chordoma.
3. Recognize cases that may not benefit from certain surgical approaches.

PANEL DISCUSSION 3: Optimal Treatment of Acoustic Neuroma

Palomino 10

MODERATOR: Pamela Roehm, MD, PhD

SPEAKERS: James Boggan, MD; Pamela Roehm, MD, PhD; Marc S. Schwartz, MD

- Overview of Vestibular Schwannoma – *Pamela Roehm, MD, PhD*
- Optimizing Surgery for Vestibular Schwannoma – *Marc S. Schwartz, MD*
- Stereotactic Radiotherapy for Vestibular Schwannoma – *James Boggan, MD*
- Post-treatment Rehabilitation after Vestibular Schwannoma – *Pamela Roehm, MD, PhD*

This panel will discuss current treatment options for acoustic neuroma including observation with serial imaging, microsurgical resection, and stereotactic radiotherapy. Physicians who treat patients with acoustic neuroma should attend.

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

1. Convey the natural history of untreated vestibular schwannoma.
2. Differentiate the various surgical approaches.
3. Identify those patients who would benefit from stereotactic radiotherapy.
4. Manage post-treatment rehabilitation.

PANEL DISCUSSION 4: Management of Vascular Issues in Skull Base Surgery

Moor 2

MODERATOR: Amir Dehdashti, MD

SPEAKERS: Mustafa Baskaya, MD; Hiroyuki Kinouchai, MD, PhD; Harry van Loveren, MD

- Dealing with Vascular Injuries in Daily Skull Base Practice: Micro-Suturing – *Mustafa Baskaya, MD*
- Talk TBD – *Harry van Loveren, MD*
- The Role of Neuroendoscope Integrated with Fluorescence Vide Angiography in the Aneurysmal Surgery – *Hiroyuki Kinouchai, MD, PhD*
- Interactive Case Discussion – *Amir Dehdashti, MD*

Discussion of management of vascular injuries during skull base surgery and tips and techniques to improve visualization and avoidance. Neurosurgeons and ENT, residents and fellows are welcome.

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

1. Discuss the management of vascular injuries during skull base surgery.
2. Use tips and techniques to improve visualization and avoidance.

12:00 pm – 1:00 pm **Lunch in Exhibit Hall for Non Members**
Business Lunch for Members in Main Ballroom

Salon D-G
Salon H&I

1:00 pm – 2:00 pm PECHAKUCHA SESSIONS

PECHAKUCHA 1: Innovation in Education

Palomino 8

MODERATORS: Jeffrey Sorenson, MD & Allan Vescan, MD, MSc, FRCSC

SPEAKERS: John De Almeida, MD, MSc, FRCSC; Juan C. Fernandez-Miranda, MD; Arif Janjua, MD, FRCSC; John Jane, MD; Ali Krisht, MD; Michael Link, MD, Eric Monteiro, MD, MSc, FRCSC; Chris Dhepnorrarat, MBBS, FRACS

The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from DePuy Synthes in support of this session.

PECHAKUCHA 2: Operating Room of the Future

Palomino 9

MODERATORS: Aaron Cohen-Gadol, MD & Raj Sindwani, MD

SPEAKERS: Vijay Anand, MD; Ricardo Carrau, MD; Roy Casiano, MD; Ian Witterick, MSc, FRCSC; Amin Kassam, MD; Daniel Kelly, MD; Neil Martin, MD; Pablo Recinos, MD

The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Leica Microsystems in support of this session.

PECHAKUCHA 4: Reconstruct This!

Moor 2

MODERATORS: Trevor Hackman, MD & Marc Rosen, MD

SPEAKERS: Roy Casiano, MD; Ivan El-Sayed, MD; Christopher Farrell, MD; Richard Hayden, MD; Adam Zanation, MD; Lee Zimmer, MD, PhD

2:00 pm – 3:00 pm PANEL DISCUSSIONS

PANEL DISCUSSION 5: Debate – Endoscopic vs. Transcranial Approaches for Meningiomas

Palomino 8

MODERATOR: James Evans, MD

SPEAKERS: Fred Gentili, MD, MSc; Juan Gomez-Amador, MD; James Liu, MD

The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Stryker in support of this session.

- Transcranial management of anterior cranial base meningiomas – *James Liu, MD*
- Indications and limitations of endonasal resection of anterior cranial base meningiomas – *Juan Gomez-Amador, MD*
- Endoscopic “versus” transcranial resection of anterior cranial base meningiomas – *Fred Gentili, MD, MSc*

This session is designed to help neurosurgeons, otolaryngologists, and ophthalmologists better understand the indications, techniques, and limitations for endoscopic versus transcranial resection of meningiomas.

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

1. Describe the indications and limitations for endonasal resection of anterior cranial base meningiomas.
2. Describe the indications and limitations of transcranial resection of anterior cranial base meningiomas.
3. Understand potential complications of endonasal resection of meningiomas.

PANEL DISCUSSION 6: Tumor Board - Pediatric Skull Base Tumors

Palomino 9

MODERATOR: Elizabeth Tyler-Kabara, MD, PhD

SPEAKERS: Jeffrey Rastatter, MD; Jay Storm, MD; Scott Wait, MD

- Craniopharyngiomas including Keyhole and Transventricular Approaches – *Scott Wait, MD*
- Other Peds Cases – *Jeffrey Rastatter, MD*
- Brainstem Cases: Endonasal and Keyhole Approaches – *Jay Storm, MD*

This session will provide an overview of pediatric skull base (endonasal, keyhole and endoscopic assisted) procedures with an emphasis on the differences between adult and pediatric patients. This will include discussion of the different anatomy, surgical strategies, pathologies, and complications.

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

1. Understanding of patient selection for pediatric skull base surgery.
2. Understanding of the differences in anatomy between pediatric and adult cases.
3. Understanding of the unique complications and surgical strategies in the pediatric population.

PANEL DISCUSSION 7: Cranial Nerve Injury: Prevention and Management

Palomino 10

MODERATOR: Michael Link, MD

SPEAKERS: Samuel Barnett, MD; Richard Hayden, MD, MSc; James Netterville, MD

- Introduction – *Michael Link, MD*
- Management of Dysphagia and Dysphonia Secondary to Lower Cranial Nerve Deficits – *James Netterville, MD*
- Rehabilitation and Treatment of Facial Weakness – *Samuel Barnett, MD*
- Hearing Rehabilitation Options for Unilateral Hearing Loss and Deafness – *Richard Hayden, MD, MSc*
- Rehabilitation of Diplopia – *Michael Link, MD*
- Question and Comments – *Michael Link, MD*

This session is for practitioners who treat and care for patients with skull base pathology who might incur cranial nerve deficits either due to the course of their disease, or treatment of the disease. This session will focus on the rehabilitation of cranial nerve deficits. Lectures will cover the treatment of cranial neuropathy induced diplopia, facial weakness, hearing loss and dysphagia and dysphonia. Experts will discuss state of the art techniques to rehabilitate cranial nerve deficits to optimize function and try and restore quality of life to patients suffering with cranial nerve disorders secondary to skull base pathology.

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

1. Demonstrate knowledge about how various cranial nerve deficits affect patient's quality of life.
2. Manage cranial nerve deficits to optimize function.
3. Choose the best rehabilitation option for individual patients to help satisfy objective 2.

PANEL DISCUSSION 8: Orbital Tumors and Approaches

Moor 2

MODERATOR: S. Tonya Stefko, MD

SPEAKERS: Khaled Aziz, MD; Ben Bleier, MD; Kris Moe, MD

- Introduction – *S. Tonya Stefko, MD*
- Endoscopic Resection of Intra- and Extraconal Masses – *Ben Bleier, MD*
- Endoscopic Orbital and Transorbital Approaches – *Kris Moe, MD*
- Eyelid Crease Approaches for Anterior Skull Base Tumors – *Khaled Aziz, MD*
- Brief Case Presentations with Audience Participation – *All*

Surgeons interested in 1.) treatment of primary and secondary orbital tumors, and 2.) approaching the intracranial space via the orbit should attend this session.

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

1. List the most common primary and secondary orbital tumors.
2. Plan surgical vs. observation vs. other treatments.

3:00 pm – 3:30 pm **Refreshment Break in Exhibit Hall**

Salon D-G

3:30 pm – 5:00 pm **PROFFERED PAPER SESSIONS 5-8**

Proffered Papers 5

Palomino 8

MODERATORS: Michael Chicoine, MD & Chris Dhepnorrarat, MBBS, FRACS

025: SURGICAL OUTCOMES AND COMPLICATIONS AFTER REOPERATION FOR RECURRENT SKULL BASE MENINGIOMAS - [Stephen T Magill, MD, PhD](#), David S Lee, BA, Adam J Yen, BS, Calixto-Hope G Lucas, BS, Michael W McDermott, MD; University of California San Francisco

026: FORAMEN MAGNUM MENINGIOMAS: RESULTS OF SURGICAL MANAGEMENT AND RISKS PREDICTING POOR OUTCOMES BASED ON A MODIFIED CLASSIFICATION - [Zhen Wu](#), Jun-Ting Zhang, Da Li; Department of Neurosurgery, Beijing Tiantan Hospital, Capital Medical University, Beijing, People's Republic of China

027: METASTASES FROM WHO GRADE III MENINGIOMAS - [Stephen T Magill, MD, PhD](#), Adam J Yen, BS, Michael Safaee, MD, David S Lee, BA, Calixto-Hope G Lucas, BS, Jennifer A Viner, NP, Michael W McDermott, MD; University of California San Francisco

028: OLFACTORY GROOVE MENINGIOMAS: COMPARISON OF EXTENT OF FRONTAL LOBE DAMAGE AFTER LATERAL AND BIFRONTAL APPROACHES - [Tanmoy Maiti](#), Subhas Konar, Bharat Guthikonda, MD, Anil Nanda, MD, MPH, FACS; LSUHSC

030: OPTIC NERVE SHEATH MENINGIOMAS. THE EVOLVING ROLE OF RADIATION THERAPY AND ANATOMIC ASSESSMENT WITH OCT. - [Saul F Morales-Valero, MD](#), Steven Newman, MD; University of Virginia

031: SPHENOORBITAL MENINGIOMA: SURGICAL SERIES AND DESIGN OF INTRAOPERATIVE MANAGEMENT PARADIGM - Lior Gonen, MD¹, Eytan Nov, MD², Nir Shimony, MD², Ben Shofty, MD², Georgios Klironomos, PhD¹, [Nevo Margalit, MD²](#); ¹Toronto Western Hospital, ²Tel Aviv Medical Center

032: SURGICAL MANAGEMENT OF SPHENOID RIDGE MENINGIOMA - [Nobutaka Kawahara, PhD](#), Jun Suenaga, MD, PhD, Shun Yoshida, Hajime Takase, Hidetoshi Murata; Neurosurgery, Yokohama City University

033: SURGICAL OUTCOMES AND COMPLICATIONS AFTER RESECTION OF FORAMEN MAGNUM MENINGIOMAS - [Stephen T Magill, MD, PhD](#), Calixto-Hope G Lucas, BS, Adam J Yen, BS, David S Lee, BS, Michael W McDermott, MD; University of California San Francisco

Proffered Papers 6

Palomino 9

MODERATORS: Marty Corsten, MD, FRSC & John Lee, MD

034: NASAL ANGIOFIBROMAS: A COMPARISON OF MODERN STAGING SYSTEMS IN AN ENDOSCOPIC ERA - [Nicholas R Rowan, MD](#), Nathan T Zwagerman, MD, Molly E Heft-Neal, BS, Paul A Gardner, MD, Carl H Snyderman, MD, MBA; University of Pittsburgh Medical Center

035: LONG TERM SINUSITIS OUTCOMES OF ENDOSCOPIC SKULL BASE SURGERY: COMPARISON OF MINIMALLY INVASIVE PITUITARY SURGERY VERSUS EXPANDED ENDOSCOPIC SURGERY FOR MALIGNANCY. - [Lauren W Fedore, MD](#), Adam M Zanation, MD; University of North Carolina Department of Otolaryngology

036: PEDIATRIC PITUITARY ADENOMAS AT THE MAYO CLINIC, 1975 THROUGH 2014 - [Christopher Marcellino, MD](#), A Perry, MD, C Graffeo, MD, John Atkinson, MD, K Giannini, MD, M Jentoft, MD, F B Meyer, MD; Mayo Clinic

037: THE NATURAL GROWTH RATE OF RESIDUAL JUVENILE NASOPHARYNGEAL ANGIOFIBROMA - [Nicholas R Rowan, MD](#), Amanda L Stapleton, MD, Molly E Heft-Neal, BS, Paul A Gardner, MD, Carl H Snyderman, MD, MBA; University of Pittsburgh Medical Center

038: LONG TERM RADIOGRAPHIC PREVALENCE AND MANAGEMENT OF CHRONIC SINUSITIS AFTER ENDOSCOPIC SKULL BASE SURGERY FOR MALIGNANCY - [Lauren W Fedore, MD](#), Satyan Sreenath, MD, Adam M Zanation, MD; University of North Carolina Department of Otolaryngology

039: THE ENDOSCOPIC ENDONASAL APPROACH FOR INTRACRANIAL JUVENILE NASOPHARYNGEAL ANGIOFIBROMAS - [Nathan T Zwagerman](#)¹, Nicholas Rowan, MD¹, Amanda Stapleton, MD¹, George Zenonos, MD¹, Joseph Chabot, DO¹, Elizabeth Tyler-Kabara, MD, PhD², Carl Snyderman, MD, MBA¹, Paul Gardner, MD¹; ¹University of Pittsburgh Medical Center, ²Children's Hospital of Pittsburgh

040: OUTCOMES IN THE TREATMENT OF PEDIATRIC SKULL BASE CHORDOMA - [Nathan T Zwagerman, MD](#)¹, George Zenonos, MD¹, Joseph Chabot, DO¹, Maria Koutourousiou, MD², Carl Snyderman, MD, MBA¹, Paul A Gardner, MD¹, Elizabeth Tyler-Kabara, MD, PhD³; ¹University of Pittsburgh Medical Center, ²University of Louisville, ³Children's Hospital of Pittsburgh

041: MULTIPARAMETRIC MAGNETIC RESONANCE IMAGING AND TEXTURE ANALYSIS TO DISTINGUISH SINONASAL INVERTED PAPILOMA FROM SQUAMOUS CELL CARCINOMA - [Shreya Ramkumar](#)¹, Sara Ranjbar¹, Shuluo Ning¹, Devyani Lal, MD², Christopher P Wood, MD³, Christine M Zwart, PhD², Teresa Wu, PhD¹, J R Mitchell, PhD², Jing Li, PhD¹, Joseph M Hoxworth, MD²; ¹Arizona State University, Tempe, AZ, ²Mayo Clinic, Phoenix, AZ, ³Mayo Clinic, Rochester, MN

042: FREE MUCOSAL GRAFT RECONSTRUCTION OF THE SEPTUM AFTER NASOSEPTAL FLAP HARVEST: A NOVEL TECHNIQUE USING A POSTERIOR SEPTAL FREE MUCOSAL GRAFT - [Frederick Yoo, MD](#)¹, Edward C Kuan, MD¹, Marvin Bergsneider, MD², Marilene B Wang, MD¹; ¹UCLA Department of Head and Neck Surgery, ²UCLA Department of Neurosurgery

Proffered Papers 7

Palomino 10

MODERATORS: Samuel Barnett, MD & Eric W. Wang, MD

043: NON-THERMAL ATMOSPHERIC PRESSURE PLASMA (NTAPP) EFFICIENTLY INDUCES CELL DEATH IN MALIGNANT VESTIBULAR SCHWANNOMA - A FEASIBILITY OF NTAPP AS ADJUVANT TREATMENT MODALITY FOR VESTIBULAR SCHWANNOMA - [Yeo Jun Yoon](#)¹, Kiwon Song, PhD¹, Eun Ha Choi²; ¹Department of Biochemistry, College of Life Science & Biotechnology, Yonsei University, ²Department of Electrophysics, Kwangwoon University, Seoul

044: A MATCHED COHORT COMPARISON OF FACIAL NERVE OUTCOMES IN SALVAGE SURGERY AFTER STEREOTACTIC RADIOSURGERY FOR PROGRESSIVE VESTIBULAR SCHWANNOMAS COMPARED WITH MICROSURGERY ALONE - [Travis C Hill, PhD](#)¹, Matthew Shinseki, BS², Rae Rokosh, BS¹, Osamah Choudhry, MD², J. Thomas Roland Jr., MD³, Douglas Kondziolka, MD², John G Golfinos, MD², Chandranath Sen, MD², Donato Pacione, MD²; ¹New York University School of Medicine, ²Department of Neurosurgery, NYU Langone Medical Center, ³Department of Otolaryngology, NYU Langone Medical Center

047: MRI ASSESSMENT OF VASCULAR CONTACT OF THE FACIAL NERVE IN THE ASYMPTOMATIC PATIENT - [Nicholas L Deep, MD](#), Geoffrey P Fletcher, MD, Kent D Nelson, MD, Ameet C Patel, MD, David M Barrs, MD, Bernard R Bendok, MD, Joseph M Hoxworth, MD; Mayo Clinic Arizona

045: FULLY ENDOSCOPIC RETROSIGMOID VESTIBULAR NERVE SECTION - [Jason A Brant, MD](#), Adam Gigliotti, MD, Johnathan Lee, MD, Michael J Ruckenstein, MD; Hospital of the University of Pennsylvania

046: FUNCTIONAL OUTCOMES OF IMMEDIATE FACIAL NERVE REPAIR AFTER RADICAL PAROTIDECTOMY - [Su Jin Han, MD](#)¹, Soon Hyung Park, MD²; ¹Department of Otolaryngology-Head and Neck Surgery, National Health Insurance Corporation Ilsan Hospital, Goyang, Korea, ²Dept. of Otorhinoaryngology, KeiMyung University of Medicine¹

048: LONG TERM OUTCOME OF VESTIBULAR SCHWANNOMA TREATMENT IN BRITISH COLUMBIA - [Serge Makarenko, MD](#)¹, Ryojo Akagami, MD, MHSc, FRCSC¹, Roy Ma, MD, FRCPC², Maryam Dosani, MD², Andrea Lo, MD², Tamir Ailon, MD, FRCSC¹, Gareth Ayre², Michael McKenzie, MD, FRCPC², Fred Hsu, MD, FRCPC², Ermias Gete, PhD², Alan Nichol, MD, FRCPC²; ¹Vancouver General Hospital, ²British Columbia Cancer Agency

049: LONG-TERM FACIAL FUNCTION AFTER FACIAL NERVE REPAIR USING A VII-XII ANASTOMOSIS AFTER VESTIBULAR SCHWANNOMA REMOVAL - Jun Hui Jeong, MD¹, [Ji Hyuk Han](#)²; ¹Department of ENT, Seoul Medical Center, ²Yonsei University College of Medicine

050: ENDOSCOPIC ENDONASAL V2 NEURECTOMY AT FORAMEN ROTUNDUM FOR INTRACTABLE FACIAL PAIN - [Salman Syed](#), Marcelo C Charles, MD, Maria Peris-Celda, MD, PhD, Carlos D Pinheiro-Neto, MD, PhD, Tyler J Kenning, MD; Albany Medical Center, Albany, NY

051: WHO IS THE BEST CANDIDATE FOR STRIPPING TECHNIQUE IN THE FACIAL NERVE SCHWANNOMA? - [Michelle J. Suh, MD](#)¹, Soon Hyung Park, MD²; ¹Yonsei University College of Medicine, ²Dept. Of Otorhinoaryngology, KeiMyung University of Medicine

Proffered Papers 8

Moor 2

MODERATORS: Yu Lan Mary Ying, MD & A. Samy Youssef, MD, PhD

052: IMPLEMENTATION OF A POSTOPERATIVE OUTPATIENT CARE PATHWAY FOR DELAYED HYPONATREMIA FOLLOWING TRANSSPHEOIDAL SURGERY DOES NOT REDUCE UNPLANNED HOSPITAL READMISSIONS - [Michael Bohl, MD](#)¹, Shah Ahmad, BS², William White, MD¹, Andrew Little, MD¹; ¹Barrow Neurological Institute, ²University of Arizona College of Medicine- Phoenix

053: ESTABLISHING AN EVIDENCE BASED APPROACH TO FACIAL NERVE DECOMPRESSION AFTER TEMPORAL BONE TRAUMA: DIAGNOSTIC ALGORITHM AND TREATMENT OPTIONS - [Aaron K Remenschneider, MD, MPH](#), Elliott D Kozin, MD, Samuel Barber, David Jung, MD, PhD; Massachusetts Eye and Ear Infirmary

054: PERIOPERATIVE ANTIBIOTIC SELECTION AND DURATION IN ENDONASAL SKULL BASE SURGERY: RECOMMENDATIONS BASED ON 7 YEARS OF CLINICAL EXPERIENCE AND LITERATURE REVIEW - [Chester F Griffiths, MD](#), Garni Barkhoudarian, MD, Kian Karimi, MD, Daniel F Kelly, MD; Pacific Brain Tumor Center John Wayne Cancer Institute

055: CAN IMMEDIATE POST-OPERATIVE RANDOM GROWTH HORMONE LEVELS PREDICT LONG TERM CURE IN PATIENTS WITH ACROMEGALY? - [Rajesh Chhabra, MS, MCh](#), Pinaki Dutta, MDDM, Kanchan K Mukherjee, MSMCh, Bishan D Radotra, MD, Prakamya Gupta; PGIMER

056: THE IMPACT OF OBESITY ON HOSPITAL LENGTH OF STAY AND POST-OPERATIVE COMPLICATIONS AFTER TRANSSPHENOIDAL PITUITARY SURGERY: AN ANALYSIS OF THE AMERICAN COLLEGE OF SURGEONS NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM DATABASE - [Andres M Bur, MD](#), Jason A Brant, MD, Kyle M Hatten, MD, Elizabeth A Nicolli, MD, John Y Lee, MD, Nithin D Adappa, MD; University of Pennsylvania

057: RANDOMIZED, DOUBLE-BLINDED, PLACEBO-CONTROLLED TRIAL COMPARING TWO OPIOID-MINIMIZING PAIN MANAGEMENT REGIMENS FOLLOWING TRANSSPHENOIDAL SURGERY: AN INTERIM ANALYSIS - [Andrew Little, MD](#), Deborah Shepherd, ACNP, Heidi Jahnke, MSN, William White, MD; Barrow Neurological Institute

058: AESTHETIC CORRECTION OF TEMPORAL HOLLOWING: A REVIEW OF THE LITERATURE AND A NOVEL ALGORITHM FOR MANAGEMENT - [Henry M Spinelli, MD](#), Jerry Chao, MD; Weill Medical College of Cornell University

059: INSTITUTIONAL PROTOCOL FOR ASSESSMENT OF POSTOPERATIVE HYPOPITUITARISM AFTER ENDOSCOPIC TRANSSPHENOIDAL SURGERY FOR PITUITARY ADENOMAS: IMPORTANCE OF LEARNING CURVE ON ENDOCRINOLOGICAL OUTCOMES - Renuka K Reddy, BS, Briette Karanfilian, BS, Maya Raghuwanshi, MD, David Bleich, MD, Jean Anderson Eloy, MD, [James K Liu, MD](#); Rutgers New Jersey Medical School

060: ROOT CAUSE ANALYSIS OF DIAGNOSTIC AND SURGICAL FAILURES IN THE TREATMENT OF SUSPECTED CUSHING'S DISEASE - [Hasan A Zaidi, MD](#), Kyle Wu, MD, Edward R Laws, Jr., MD; Brigham and Women's Hospital/ Harvard Medical School

5:00 pm – 5:45 pm CONCURRENT SESSIONS

BRAINSTORMING SESSION 1: Design of Collaborative Trials

Palomino 8

NEW THIS YEAR! In this *Brainstorming Session* come help generate and participate in an open discussion of possible clinical and research trials for the NASBS membership. The goal of the session is to develop an outline for 2-3 collaborative trials that can be further developed by the appropriate NASBS committees.

- A. Sinonasal Malignancy – *James K Byrd; Jean Anderson Eloy; Peter Hwang; Jason Newman; C. Arturo Solares*
- B. Quality of Life – *Garni Barkhoudarian; John R. de Almeida; Kenneth De Los Reyes; Ziv Gil; Carlos Pinheiro-Neto; Vikram Prabhu*
- C. Radiotherapy – *Michelle Alonso-Basanta; Stacey Gray; Andrew S. Little*

COACHING SESSION 1: Sellar/Parasellar Tumors

Palomino 9

MODERATORS: Paul A. Gardner, MD & Daniel F. Kelly, MD

The *Coaching Session* is new this year and is an opportunity to provide constructive criticism regarding surgical technique and provide discussion on short surgical videos.

Media Training for Skull Base Surgeons – *Nancy Snyderman, MD*

Palomino 10

This will be a physician/reporter's inside guide to the media including how to access local and national media, the advantages and pitfalls of impeccable messaging, and how to educate the public and colleagues. Recent example of press coverage will be discussed. This will be a roundtable forum with physicians invited to bring their personal experiences – both pro and con – to the table.

6:00 pm – 7:30 pm Welcome Reception in Exhibit Hall

Salon D-G

7:45 pm – 10:00 pm Past President's Dinner (Invitation Only)

Bourbon Steak

SATURDAY, FEBRUARY 13, 2016

6:45 am – 7:00 am **Continental Breakfast**

Palomino East Foyer

6:00 am – 7:00 pm **Registration Open**

East Foyer D-H

7:00 am – 7:45 am **MASTER SURGEON SESSIONS**

MASTER SURGEON 5: Nuances of Acoustic Tumor: Achieving Best Facial Nerve and Hearing Outcomes

Palomino 8

MODERATOR: Siviero Agazzi, MD, MBA

SPEAKERS: Rick Friedman, MD, PhD; John Golfinos, MD; Michihiro Kohno, MD

- Reading the MRI to Understand Your Chances of Saving Hearing and the Facial Nerve – *John Golfinos, MD*
- Intra-Operative Continuous Monitoring of Evoked Facial Nerve Electromyogram in Large Acoustic Neuroma Surgery – *Michihiro Kohno, MD*
- Nuances of Hearing Preservation in the Middle Fossa Approach to Acoustic Neuromas – *Rick Friedman, MD, PhD*

This session will provide a detailed and focused insight into strategies to achieve best surgical results in acoustic tumor resection. Three experts with extensive experience in acoustic neuroma surgery will review the pre-operative, intra-operative and approach related nuances for an optimal patient outcome. Although the session will be geared towards experienced skull base surgeons, younger neurosurgeons will benefit the most from the interactive discussion and case presentation.

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

1. Organize their evaluation of pre-operative MRI for acoustic neuroma surgery.
2. Differentiate the different modalities of facial nerve monitoring in acoustic neuroma surgery.
3. Develop a detailed strategy for a successful middle fossa approach to acoustic neuroma surgery.

MASTER SURGEON 6: Transfacial Surgery for Skull Base Cancers: What is the Current Role?

Palomino 9

MODERATOR: Ehab Hanna, MD

SPEAKERS: Dan Fliss, MD; Patrick Gullane, CM, MB; Dennis Kraus, MD

- Patient Selection for Transfacial Approaches: Indications, Advantages, and Limitation. – *Dan Fliss, MD*
- Transfacial Approaches: Classification and Approach Selection – *Patrick Gullane, CM, MB*
- Transfacial Approaches Outcomes: Efficacy and Morbidity – *Dennis Kraus, MD*

As you know with the evolution and increasing adoption of endoscopic approaches the role of transfacial approaches is being re-evaluated. Transfacial approaches are still the procedure of choice for certain groups of patients.

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

1. Recognize different transfacial approaches for skull base surgery for certain patients.

MASTER SURGEON 7: Skull Base Surgery for Complex Intracranial Aneurysms

Palomino 10

MODERATOR: Bernard Bendok, MD

SPEAKERS: Carlos David, MD; Jacques Morcos, MD; Anil Nanda, MD

The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Mizuho America, Inc. in support of this session.

- Basilar Apex Aneurysms: Are Skull Base Approaches Needed – *Carlos David, MD*
- Giant Aneurysms: Modern Challenges and Controversies – *Jacques Morcos, MD*
- Giant Aneurysms: No Place for a Procrustean Approach – *Anil Nanda, MD*

In this session the daunting challenges and rewards of treating complex intracranial aneurysms will be reviewed. The utility of incorporating skull base approaches and bypass techniques will be presented. Special focus will be placed on basilar apex and giant aneurysms.

MASTER SURGEON 8: Nuances of Endoscopic Pituitary Tumor Removal – Achieving Best Endocrinological, Oncological and Visual Outcomes

Moor 2

MODERATOR: Andrew Little, MD

SPEAKERS: Marvin Bergsneider, MD; John Jane, MD; Daniel Kelly, MD

- Overview and Optimizing Quality of Life – *Andrew Little, MD*
- Gland Preservation and Complication Avoidance – *Daniel Kelly, MD*
- Pseudocapsular Dissection Technique – *Marvin Bergsneider, MD*
- Limitations of Endonasal Surgery – *John Jane, MD*
- Discussion and Q&A

Experienced pituitary surgeons will share with attendees strategies for avoiding complications, maximizing tumor extent of resection, and preserving gland function and quality of life. This session is appropriate for neurosurgeons and otolaryngologists.

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

1. Describe methods to preserve pituitary gland function following surgery.
2. Describe techniques to avoid complications.

8:00 am – 8:30 am Best Papers & Presentation of Awards

Salon H&I

MODERATORS: Michael Gleeson, MD & Dennis Kraus, MD

Best Research Abstract

061: EFFECT OF IN VIVO OXIDIZED CELLULOSE ON IN VITRO GROWTH OF HUMAN RESPIRATORY MUCOSA AND SUB-MUCOSA DURING ENDOSCOPIC SKULL BASE APPROACHES - Ezequiel Goldschmidt¹, Jorge Rasmussen², Joseph D Chabot¹, Monica Loressi², Marcelo Ielpi², Romina Proni², Lina Merlotti², Emilia Luzzi², Pablo Ajler², Claudio Yampolsky², Peter C Gerszten¹, Carl Snyderman¹, Paul A Gardner¹; ¹University of Pittsburgh Medical Center, ²Hospital Italiano de Buenos Aires

Best Clinical Abstract

062: QUALITY OF LIFE ANALYSIS IN VESTIBULAR SCHWANNOMA PATIENTS: TO LEAVE OR NOT TO LEAVE... GROSS TOTAL VS. LESS THAN GROSS TOTAL RESECTION IN AN INTERNATIONAL COHORT OF PATIENTS. - Michael J Link, MD¹, Matthew L Carlson, MD¹, Morten Lund-Johansen, MD, PHD², Oystein Vesterli Tveiten, MD², Colin L Driscoll, MD¹, Erling Myrseth, MD, PHD², Christine M Lohse, MS¹; ¹Mayo Clinic, ²Haukeland University Hospital

Best Papers

To Be Announced

8:30 am – 9:30 am KEYNOTE LECTURE: On the Edge: The Art of High-Impact Leadership

Salon H&I

INTRODUCTION: Carl Snyderman, MD, MBA

KEYNOTE SPEAKER: Alison Levine, An Adventurer, Explorer and Mountaineer

9:30 am – 10:00 am Refreshment Break in Exhibit Hall

Salon D-G

10:00 am – 11:00 am PROFFERED PAPER SESSIONS 9-12

Proffered Papers 9

Palomino 8

MODERATORS: Pablo F. Recinos, MD & C. Arturo Solares, MD

062: QUALITY OF LIFE ANALYSIS IN VESTIBULAR SCHWANNOMA PATIENTS: TO LEAVE OR NOT TO LEAVE... GROSS TOTAL VS. LESS THAN GROSS TOTAL RESECTION IN AN INTERNATIONAL COHORT OF PATIENTS. - Michael J Link, MD¹, Matthew L Carlson, MD¹, Morten Lund-Johansen, MD, PHD², Oystein Vesterli Tveiten, MD², Colin L Driscoll, MD¹, Erling Myrseth, MD, PHD², Christine M Lohse, MS¹; ¹Mayo Clinic, ²Haukeland University Hospital

064: SURGICAL STRATEGIES FOR AGGRESSIVE SKULL BASE MENINGIOMAS - Naoyuki Nakao, MD, PhD, Junya Fukai, MD, PhD, Hiroki Nishibayashi, MD, PhD, Koji Fujita, MD, PhD; Wakayama Medical University

065: NEWLY DIAGNOSED SELLAR TUMORS IN PATIENTS WITH CANCER. ADVANTAGES OF SURGICAL INTERVENTION OVER EMPIRIC RADIOTHERAPY - [Carlos R Goulart](#), Smita Upadhyay, Leo F Ditzel, Bradley A Otto, Ricardo L Carrau, Luciano M Prevedello, Daniel M Prevedello; Ohio State University

066: EARLY POSTOPERATIVE RESULTS OF MICROSURGERY OF ANTERIOR CLINOIDAL MENINGIOMAS - RUSSIAN (SIBERIAN) EXPERIENCE - [Sergey Chernov, MD, PhD](#), Anton Kalinovskiy, MD, PhD, Alexander Dmitriev, MD, PhD, Agadadash Kasymov, MD, Alexander Zotov, MD, Ekaterina Gormolysova, MD, Elena Uzhakova, MD; Novosibirsk Federal Center of Neurosurgery

067: THE ROLE OF FIESTA MRI FOR ASSESSMENT OF DELAYED ENHANCEMENT OF FAT GRAFT PACKING ON POST-OPERATIVE IMAGING AFTER ACOUSTIC NEUROMA SURGERY - Naveed H Kamal, BA, Huey-Jen Lee, MD, Yu-Lan Mary Ying, MD, Robert W Jyung, MD, [James K Liu, MD](#); Rutgers New Jersey Medical School

Proffered Papers 10

Palomino 9

MODERATORS: Garni Barkhoudarian, MD & Iman Naseri, MD

068: PREDICTORS OF AGGRESSIVE CLINICAL PHENOTYPE AMONG IMMUNOHISTOCHEMICALLY CONFIRMED ATYPICAL ADENOMAS - [Hasan A Zaidi, MD](#), David J Cote, BS, Ian F Dunn, MD, Edward R Laws, Jr., MD; Brigham and Women's Hospital/Harvard Medical School

069: TREATMENT OUTCOMES OF RATHKE'S CLEFT CYSTS MANAGED WITH MARSUPIALIZATION - [Edward C Kuan, MD¹](#), Frederick Yoo, MD¹, Marvin Bergsneider, MD², Marilene B Wang, MD¹; ¹UCLA Head and Neck Surgery, ²UCLA Neurosurgery

070: THE PRESENTATION AND CLINICAL MANAGEMENT OF PITUITARY MICROADENOMA APOPLEXY - David I Bass, PhD¹, Carlos Bartels, MD², Sheila R Eshraghi, MD¹, Adriana Ioachimescu, MD, PhD¹, Nelson M Oyesiku, MD, PhD¹, [Gustavo Pradilla, MD¹](#); ¹Emory University School of Medicine, ²Santa Fe Foundation, Rosario University

071: INTERRATER RELIABILITY OF INTERMEDIATE KNOSP GRADES FOR PITUITARY ADENOMA GRADING IS POOR - [Michael A Mooney, MD](#), Douglas Hardesty, MD, John Paul Sheehy, MD, Robert Bird, MD, Kristina Chapple, William White, MD, Andrew S Little, MD; Barrow Neurological Institute

072: CHARACTERISTICS AND TREATMENT OUTCOMES OF INCIDENTAL PITUITARY ADENOMAS: AN ANALYSIS OF 102 PATIENTS OVER 18 YEARS - [Justin Seltzer](#), John D Carmichael, MD, Martin Weiss, MD, Gabriel Zada, MD; Keck School of Medicine of USC

073: ATYPICAL PITUITARY ADENOMA: A CLINICOPATHOLOGIC CASE SERIES - [Martin Rutkowski, MD](#), Ryan Alward, Derek Southwell, Rebecca Chen, Jeffrey Wagner, Arman Jahangiri, Lewis Blevins, Sandeep Kunwar, Manish Aghi; UCSF

Proffered Papers 11

Palomino 10

MODERATORS: Marvin Bergsneider, MD & Peter Constantino, MD

074: ANATOMIC GUIDELINES FOR THE REPAIR OF CSF LEAKS IN THE LATERAL RECESS OF THE SPHENOID SINUS - Alfredo José Herrera Vivas, MD¹, Javier Andrés Ospina Díaz, MD², [Allison Slijepcevic³](#), Carolina Wuesthoff, MD¹, Daniel Prevedello, MD³, Brad Otto, MD³, Ricardo Carrau, MD³; ¹Hospital Universitario San Ignacio, Pontificia Universidad Javeriana, ²Fundación Santa Fe de Bogotá, Pontificia Universidad Javeriana, ³The Ohio State University Wexner Medical Center

075: OLFACTORY ASSESSMENT IN PATIENTS UNDERGOING ENDOSCOPIC SKULL BASE SURGERY- LESSONS LEARNT - Smita Upadhyay, Lamia Buohliqah, MD, Bradley A Otto, MD, Daniel M Prevedello, MD, [Ricardo L Carrau](#); Ohio State University

076: NASOSEPTAL FLAP NECROSIS: INCIDENCE, CLINICAL DESCRIPTION, AND OUTCOMES - [Joseph D Chabot, DO¹](#), Chirag Patel, MD², Nathan Zwagerman, MD¹, Georgios Zenonos, MD¹, Eric Wang, MD¹, Carl Snyderman, MD, MBA¹, Paul Gardner, MD¹, Juan C Fernandez-Miranda¹; ¹UPMC, ²Loyola University Medical Center

077: INFERIOR FRONTAL LOBE POSITION AFTER ENDOSCOPIC ANTERIOR SKULL BASE RESECTION AND REPAIR WITH ACELLULAR ALLOGRAFT. - Mohammad Al-Bar, MD, [Corinna Levine, MD, MPH](#), Charif Sidani, MD, Zoukaa Sargi, MD, MPH, Roy Casiano; University of Miami/Jackson Health System

078: CEREBROSPINAL FLUID LEAK AFTER MICROVASCULAR RECONSTRUCTION OF LARGE CRANIOFACIAL DEFECTS WITH ORBITAL EXENTERATION - [Kurren S Gill, BA](#), David Hsu, MD, Patrick Tassone, MD, Howard Krein, MD, PhD, Jurij Bilyk, MD, Ann Murchison, MD, MPH, Sara Lally, MD, Ryan Heffelfinger, MD, Marc Rosen, MD, James J Evans, MD, Gurston Nyquist, MD, Joseph Curry, MD, John Pluta, MS; Thomas Jefferson University

079: EXTRUSION OF NON-POROUS POLYETHYLENE IMPLANTS AFTER ENDOSCOPIC RECONSTRUCTION OF LARGE SKULL BASE DEFECTS. - [Conner J Massey, MD¹](#), Michaela Lee, MD¹, Zachary Litvack, MD¹, Nilesh Vyas, MD², Ameet Singh, MD²; ¹George Washington University Medical Center, ²Inova Fairfax Hospital

Proffered Papers 12

Moor 2

MODERATORS: Steven Newman, MD & Gelareh Zadeh, MD, PhD

080: ASSESSMENT OF INTRACRANIAL PRESSURE DURING VENOUS SINUS STENTING - Robert M Stark, MD, MSc, Kenneth C Liu, MD, Webster Crowley, MD, [Steven A Newman, MD](#); University of Virginia

081: SPONTANEOUS MENINGOENCEPHALOCELES – A LARGE PROBLEM: A RETROSPECTIVE STUDY ON THE ASSOCIATION OF BMI AND THE CAUSES, EFFECTS, AND REPAIR OF CSF LEAKS AND MENINGOENCEPHALOCELES. - [Mark AbuMoussa, MSc](#), Michael Cools, MD, Brice Kessler, MD, Edward Yap, MD, Adam M Zanation, MD, Deanna Sasaki-Adams, MD; UNC School of Medicine

082: MIDDLE CRANIAL FOSSA ENCEPHALOCELE AND CEREBROSPINAL FLUID LEAKAGE: ETIOLOGY, APPROACH, OUTCOMES - [Beth N McNulty, MD¹](#), Sundeep Alapati, DO², Seilesh Babu, MD¹, Dennis Bojrab¹, Michael LaRouere¹; ¹Michigan Ear Institute, ²St. John Providence Health System

083: META-ANALYSIS COMPARING CONTINUOUS AND INTERMITTENT CEREBROSPINAL FLUID DRAINAGE IN ANEURYSMAL SUBARACHNOID HEMORRHAGE - [Sam Safavi-Abbasi, MD, PhD¹](#), Christopher D Wilson, BS², Cameron Ghafil, BS², Robert F Spetzler, MD¹; ¹Barrow Neurological Institute, ²University of Oklahoma

084: TRANSMASTOID REPAIR OF SPONTANEOUS CEREBROSPINAL FLUID LEAKS - Daniel A Carlton, [Enrique Perez, MD, MBA](#), Eric Smouha, MD; Mount Sinai Hospital

085: RACIAL AND ETHNIC DISPARITIES IN OUTCOMES AND COSTS IN PITUITARY SURGERY PATIENTS - Erden Goljo, BS, [Arjun Parasher, MD](#), Alfred M Illoreta, MD, Raj Shrivastava, MD, Satish Govindaraj, MD; Icahn School of Medicine at Mount Sinai

11:00 am – 12:00 pm **PANEL DISCUSSIONS**

PANEL DISCUSSION 9: When GTR is Not the Goal

Palomino 8

MODERATOR: Philip Theodosopoulos, MD

SPEAKERS: Fred Gentili, MD, MSc; Carl Heilman, MD; Jacques Morcos, MD

- Craniopharyngiomas – *Fred Gentili, MD, MSc*
- Meningioma – *Carl Heilman, MD*
- Treatment at Progressions – *Jacques Morcos, MD*

In this session we will discuss the clinical nuances of treating skull base tumors that either at presentation or recurrence are best treated with less than a gross total resection. We will assess other treatment strategies, including adjuvant radiation therapy and chemotherapy.

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

1. Identify the pathologies that are best suitable for hybrid treatment modalities.
2. Recognize the limitations of primary surgical treatment of skull base tumor.
3. Formulate a multi-modality treatment plan for skull base tumors.

PANEL DISCUSSION 10: Sellar/Parasellar Tumors

Palomino 9

MODERATOR: Amir Dehdashti, MD

SPEAKERS: Manish Aghi, MD, PhD; Norberto Andaluz, MD; Gelareh Zadeh, MD, PhD

- Staged Approaches (Endoscopic-Open) and Adjuvant Therapies (XRT/Chemo) for Giant Adenomas – *Manish Aghi, MD, PhD*
- Supraorbital Approaches and Its Variants – *Norberto Andaluz, MD*
- Molecular Predictors of Growth and Recurrence in Pituitary Adenomas – *Gelareh Zadeh, MD, PhD*
- Interactive Case Discussion – *Amir Dehdashti, MD*

In this session approaches to sella/parasellar tumors and discussion of risk factors for recurrence will be discussed. Neurosurgeons, ENT, endocrinologists, residents and fellows would benefit from this session.

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

1. Discuss different treatment options for seller/parasellar tumors and discuss the risk factors for recurrence.

PANEL DISCUSSION 11: Centers of Excellence: Is It Time?

Palomino 10

MODERATOR: Ian Witterick, MD, MSc, FRCSC

SPEAKERS: Daniel Kelly, MD; Anil Nanda, MD; Daniel Nuss, MD

- Introduction – *Ian Witterick, MD, MSc, FRCSC*
- Basic Structure and Criteria for a COE – *Daniel Kelly, MD*
- COE and Volume: The Correlation and Published Data – *Anil Nanda, MD*
- What Metrics Should be Used to Judge a COE? – *Daniel Nuss, MD*
- Panel Discussion

This session will discuss the concept of Centers of Excellence (COE) for skull base surgery and whether they are of value. We will explore the basic structure of a COE, the evidence for improved outcomes with higher case volumes and the metrics that we should consider using to evaluate the success of a COE. Presentations on these topics will be followed by a panel discussion with interactive audience participation.

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

1. To illustrate the basic structure and function of a COE.
2. To evaluate the evidence that COEs provide better quality care.
3. To prioritize the metrics a COE should be evaluated on.

PANEL DISCUSSION 12: Intracranial Hypertension

Moor 2

MODERATOR: Bradford Woodworth, MD

SPEAKERS: Naresh Patel, MD; Yu Lan Mary Ying, MD; Jenny Yu, MD

- Imaging Techniques for CSF Leaks due to Intracranial Hypertension – *Naresh Patel, MD*
- Ophthalmic Imaging Modalities in Managing Intracranial Hypertension – *Jenny Yu, MD*
- Otologic Manifestations of Idiopathic Intracranial Hypertension – *Yu Lan Mary Ying, MD*
- Comprehensive Coordinated Treatment of Spontaneous CSF Leaks – *Bradford Woodworth, MD*

Intracranial hypertension is now recognized as the major contributor to the development of spontaneous CSF leaks and can cause significant detriment to the integrity of a skull base reconstruction. This session should be attended by practitioners with an interest in the latest management strategies and imaging modalities for CSF leaks associated with intracranial hypertension.

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

1. Apply the latest imaging techniques for diagnosis and management of intracranial hypertension and spontaneous CSF leaks.
2. Select appropriate medical and surgical treatments for patients with increased intracranial pressure.
3. Employ comprehensive coordinated care for the patient with CSF leaks due to intracranial hypertension.

12:00 pm – 1:00 pm **Lunch & Poster Viewing in Exhibit Hall**

1:00 pm – 2:00 pm **PECHAKUCHA SESSIONS**

PECHAKUCHA 5: Quality Improvement Conference

Palomino 8

MODERATORS: Neil Martin, MD & Erin McKean, MD

SPEAKERS: Cesar Briceno, MD; Devyani Lal, MD; Steve Sullivan, MD; B. Gregory Thompson, MD; Kyle Vankoevinger MD

PECHAKUCHA 6: Global Challenges in Skull Base Surgery

Palomino 9

MODERATORS: Robert Behr, MD & Francois Lavigne, MD

SPEAKERS: Ricardo Carrau, MD; Sebastian Froelich, MD; Michael Gleeson, MD; Louise Lambert, MD, FRCPC; Phillippe Lavigne, MD; Kenji Ohata, MD; Patrice Tran-Ba-Hui, MD, Ian Witterick, MSc, FRCSC

PECHAKUCHA 7: Hemostasis: Strategies & Techniques

Palomino 10

MODERATORS: Peter Hwang, MD & Madison Michael, MD

SPEAKERS: Siviero Agazzi, MD; Michael Chicoine, MD; Robert Dodd, MD, PhD; Christopher Farrell, MD; Carl Heilman, MD; John Jane, MD; Devyani Lal, MD; Raj Sindwani, MD, FRCSC

The North American Skull Base Society gratefully acknowledges an unrestricted educational grant from Baxter Healthcare Corporation in support of this session.

PECHAKUCHA 8: I Wish I Hadn't Done That! Complications & Bad Outcomes*Moor 2*

MODERATORS: G. Michael Lemole Jr, MD & Daniel Nuss, MD

SPEAKERS: Marvin Bergsneider, MD; Alex Chiu, MD; Jeremy Ciporen, MD; Carlos David, MD; Carl Heilman, MD; G. Michael Lemole, MD; Andrew Little, MD

2:00 pm – 3:00 pm **PANEL DISCUSSIONS****PANEL DISCUSSION 13: Complications of Radiation Therapy***Palomino 8*

MODERATOR: Peter Gooderham, MD

SPEAKERS: Sameer Keole, MD; Michael McDermott, MD; Vikram Prabhu, MD

- Introduction – *Peter Gooderham, MD*
- Complications of Radio Surgery for Intracranial Meningiomas – *Michael McDermott, MD*
- Risks of Radiation Induced Neoplasms – *Vikram Prabhu, MD*
- Acute and Delayed Adverse Effects Specific to Proton Beam Radiation Therapy – *Sameer Keole, MD*
- Questions from Audience for Panel

This session will review some common and important adverse outcomes which can occur following radiation therapy for skull base pathology. Highlights will include a review of acute toxicities in proton beam radiation therapy, radiation induced neoplasms and complications specific to the treatment of intracranial meningiomas. This session is geared towards surgeons and other practitioners involved in the management of skull base tumours.

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

1. Evaluate the risk of complications following stereotactic radiosurgery for intracranial meningiomas.
2. Articulate the risk of radiation induced neoplasm following radiation therapy for skull base tumors.
3. Recognize the specific acute and delayed adverse effects of proton beam radiation therapy in contrast to photon based radiation therapy.

PANEL DISCUSSION 14: Tumor Board: Temporal Bone*Palomino 9*

MODERATOR: Tom Roland, MD

SPEAKERS: Mario Ammirati, MD; Giovanni Danesi, MD; John Leonetti, MD

- Tumor Board – *Tom Roland, MD and all Panelists*

This session will be conducted in the manner of a regular tumor board that one might have at their institution or hospital. Approximately 6 cases will be presented with each case bringing to light an important concept or controversial management dilemma. The cases will include facial nerve tumors, glomus tumors, inflammatory tumors and unusual tumors. Discussion will be center around tumor control, facial nerve function, hearing and lower cranial nerve function. The panelists will be asked to comment as the cases are being presented. A final management plan will be developed based on the feedback. Some time will be left for audience questions or comments.

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

1. Distinguish management options for complex temporal bone tumors.
2. Illustrate management options for hearing loss and facial nerve injury with complex temporal bone tumors.
3. Organize a thoughtful management plan for patients with complex temporal bone tumors considering all treatment options.

PANEL DISCUSSION 15: Controversies in the Management of Craniopharyngioma*Palomino 10*

MODERATOR: Maria Koutourousiou, MD

SPEAKERS: Fred Barker, MD; Fred Boop, MD; Kenji Ohata, MD

- Introduction – *Maria Koutourousiou, MD*
- Radical Resection of Craniopharyngiomas: Endoscopic Endonasal and Transcranial Approaches – *Kenji Ohata, MD*
- Partial Surgical Resection plus Focal Radiation in Pediatric Craniopharyngiomas - *Fred Boop, MD*
- Adjuvant Treatment of Craniopharyngiomas: Updates on the Medical Management of Craniopharyngiomas and Trial Design – *Fred Barker, MD*
- Question & Answers
- Case Presentations

Discuss the challenge in the management of craniopharyngiomas and explain the necessity of multimodality treatment. Describe treatment options with updates on new techniques and approaches that should be tailored to individuals. To be attended by Neurosurgeons, ENTs.

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

1. Compare the benefits and limitations of radical lesion resection vs. partial resection with adjuvant treatment.
2. Distinguish treatment challenges of pediatric from adult craniopharyngiomas.
3. Understand the updates on the medical management of craniopharyngiomas.

PANEL DISCUSSION 16: Controversies in Petroclival Tumors

Moor 2

MODERATOR: Bharat Guthikonda, MD

SPEAKERS: Eiji Kohmura, MD, PhD; Diego Mendez-Rosito, MD; A. Samy Youssef, MD

- Introduction – *Bharat Guthikonda, MD*
- Talk TBD – *Eiji Kohmura, MD*
- Discussion of Various Approaches According to Tumor Pathology in the Petroclival Region – *Diego Mendez-Rosito, MD*
- Talk TBD – *A. Samy Youssef, MD*

During this session surgical approaches for various petroclival tumoral pathologies will be discussed. Personal experiences concerning the management of petroclival tumors will be shared and discussed.

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

1. Compare different surgical approaches for distinct petroclival tumors.
2. Discuss surgical approaches according to the pathology of tumors in the petroclival region.
3. Illustrate distinct surgical corridors according to the tumor location.

3:00 pm – 3:30 pm **Refreshment Break in Exhibit Hall**

3:30 pm – 5:00 pm **PROFFERED PAPER SESSIONS 13-16**

Proffered Papers 13

Palomino 8

MODERATORS: James Evans, MD & Christopher H. Rassekh, MD

086: PRETREATMENT GROWTH RATE AS A PREDICTOR OF TUMOR CONTROL FOLLOWING GAMMA KNIFE RADIOSURGERY FOR SPORADIC VESTIBULAR SCHWANNOMA - [Alexander P Marston, MD](#), Jeffrey T Jacob, MD, Matthew L Carlson, MD, Bruce E Pollock, MD, Colin L W Driscoll, MD, Michael J Link, MD; Mayo Clinic

087: PENCIL BEAM SCANNING INTENSITY MODULATED PROTON THERAPY FOR HEAD AND NECK CANCERS INVOLVING SKULL BASE - [Robert S Malyapa, MD, PhD¹](#), Damien C Weber, MD¹, Ralf Schneider, MD¹, Lorentzos Mikroutsikos, MS¹, Alessandra Bolsi, PhD¹, Francesca Albertini, PhD¹, Matthew Lowe, PhD², Anthony J Lomax, PhD¹; ¹Paul Scherrer Institute, Switzerland, ²The Christie NHS Foundation Trust, Manchester, UK

088: NEOADJUVANT RADIATION IMPROVES MARGIN STATUS COMPARED TO ADJUVANT RADIATION AMONG PATIENTS WITH NON-SQUAMOUS CELL CARCINOMA SINONASAL MALIGNANCIES - [Terence S Fu, MBA¹](#), Christopher J Chin, MD, FRCSC², Wei Xu, PhD³, Jiahua Che³, Yazeed Alghonaim, MD, FRCSC², Shao Hui Huang, MSc⁴, Jolie Ringash, MD, MSc, FRCSC⁵, Ian J Witterick, MD, MSc, FRCSC⁵; ¹Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada, ²Faculty of Medicine, University of Toronto; Department of Otolaryngology-Head & Neck Surgery, University of Toronto, Toronto, Ontario, Canada, ³Dalla Lana School of Public Health, University of Toronto; Department of Biostatistics, Princess Margaret Hospital, Toronto, Ontario, Canada., ⁴Faculty of Medicine, University of Toronto; Department of Radiation Oncology, Princess Margaret Cancer Centre-University Health Network, University of Toronto, Toronto, Ontario, Canada, ⁵Faculty of Medicine, University of Toronto; Department of Otolaryngology-Head & Neck Surgery, University of Toronto; Department of Radiation Oncology, Princess Margaret Cancer Centre-University Health Network, University of Toronto, Toronto, Ontario, Canada

089: DELAYED VESTIBULAR SCHWANNOMA GROWTH FOLLOWING STEREOTACTIC RADIOSURGERY - [Richard R Locke, MB, ChB, PhD, FRCS¹](#), John A Crowther, MB, ChB, FRCS¹, William Taylor², Georgios Kontorinis, MB, ChB, MD, MA¹; ¹ENT Department, Queen Elizabeth University Hospital, Glasgow, ²Institute of Neurosciences, Queen Elizabeth University Hospital South Glasgow, Glasgow

090: SURGERY AFTER RADIATION THERAPY FOR VESTIBULAR SCHWANNOMA - Jonathan D Breshears, MD, Joseph A Osorio, MD, PhD, Steven W Cheung, MD, Philip V Theodosopoulos, MD; UCSF

091: TIMING OF ONSET AND RECOVERY OF DELAYED FACIAL PALSY AFTER VESTIBULAR SCHWANNOMA RESECTION: INSIGHT INTO MECHANISMS - Stephano Chang, MD, BSc, Ryojo Akagami, MD, BSc, MHSc, FRCSC; University of British Columbia

092: GENOMIC LANDSCAPE OF PITUITARY ADENOMAS - Wenya Linda Bi, MD, PhD¹, Peleg Horowitz, MD, PhD¹, Yu Mei, MD, PhD¹, Malak Abedalthagafi, MD¹, Pankaj Agarwalla, MD², Sandro Santagata, MD, PhD¹, Edward R Laws, MD, FACS¹, Rameen Beroukhi, MD, PhD², Ian F Dunn, MD¹; ¹Brigham and Women's Hospital, ²Dana Farber Cancer Institute

093: PATHOGENETIC ANALYSIS OF SINONASAL TERATOCARCINOSARCOMAS REVEAL BETA-CATENIN OVEREXPRESSION AND AN ACTIONABLE BETA-CATENIN MUTATION - Andrew C Birkeland, MD, Sarah Burgin, MD, Jacques E Nor, DDS, MS, PhD, Jonathan B McHugh, MD, Scott A McLean, MD, PhD, Erin L McKean, MD, Chad Brenner, PhD; University of Michigan

094: UPDATE ON SURGICAL OUTCOMES OF LATERAL TEMPORAL BONE RESECTION FOR EAR AND TEMPORAL BONE MALIGNANCIES - Sumi Sinha, Matthew Dedmon, MD, PhD, Matthew Naunheim, MD, MBA, Jennifer Fuller, MD, Stacey Gray, MD, Derrick Lin; Massachusetts Eye & Ear Infirmary

Proffered Papers 14

Palomino 9

MODERATORS: Robert Behr, MD, PhD & Bradley A. Otto, MD

095: NEUROFIBROMATOSIS TYPE 2: NATURAL HISTORY, OUTCOMES, AND TREATMENT PATTERNS IN A LARGE CONTEMPORARY COHORT - Brian A Chu¹, Timothy E Hullar, MD², Albert H Kim, MD, PhD³, Jonathan L McJunkin, MD³, Gregory J Zipfel, MD³, Keith M Rich, MD³, Richard A Chole, MD, PhD³, John G Neely, MD³, Robert L Grubb, MD³, Jian L Campian, MD³, Joseph R Simpson, MD, PhD³, Jiayi Huang, MD³, Christina Tsien, MD³, Clifford G Robinson, MD³, Ralph G Dacey, MD³, David H Gutmann, MD, PhD³, Michael R Chicoine, MD³; ¹Washington University in St. Louis, ²University of Oregon, ³Washington University School of Medicine

096: IN GROWING VESTIBULAR SCHWANNOMAS: GROWTH COMPARISON BETWEEN UNTREATED PATIENTS AND THOSE TREATED WITH STEREOTACTIC RADIOSURGERY - Richard R Locke, MB, ChB, PhD, FRCS¹, John A Crowther, MB, ChB, FRCS¹, William Taylor, MB, ChB, FRCS², Georgios Kontorinis, MB, ChB, MD, MA¹; ¹ENT Department, Queen Elizabeth University Hospital, Glasgow, ²Institute of Neurosciences, Queen Elizabeth University Hospital South Glasgow, Glasgow

097: IMPROVEMENTS IN CLINICAL OUTCOMES FOR SUPERIOR SEMICIRCULAR CANAL DEHISCENCE TREATMENT WITH MIDDLE FOSSA CRANIOTOMY - Nolan Ung, Panayiotis Pelargos, Lawrence K Chung, Brittany Voth, Natalie Barnette, Nikh Bhatt, Isaac Yang, Quinton Gopen; UCLA

098: NEOADJUVANT CHEMOTHERAPY IN TEMPORAL BONE CARCINOMA – OUR EXPERIENCE - Ankit D Mahuvakar, MS, DNB; Tata Memorial Hospital, Mumbai

099: VESTIBULAR SCHWANNOMA GROWTH PATTERNS IN 10 YEAR FOLLOW UP - Richard R Locke, MB, ChB, PhD, FRCS¹, John A Crowther, MB, ChB, FRCS¹, William Taylor, MB, ChB, FRCS², Georgios Kontorinis, MB, ChB, MD, MA¹; ¹ENT Department, Queen Elizabeth University Hospital, Glasgow, ²Institute of Neurosciences, Queen Elizabeth University Hospital South Glasgow, Glasgow

100: SURGICAL OUTCOMES FOLLOWING TRANSMASTOID APPROACH FOR REPAIR OF SUPERIOR SEMICIRCULAR CANAL DEHISCENCE - Thomas A Babcock, MD¹, Simon I Angeli, MD¹, Fred Telischi, MD¹, Michael Hoffer, MD¹, Adrien Eshraghi, MD¹, Colleen Perez, MD²; ¹University of Miami Miller School of Medicine Department of Otolaryngology, ²Navy Medical Center San Diego Department of Otolaryngology

101: AUDITORY BRAINSTEM IMPLANTATION (ABI) IN PRELINGUALLY DEAF CHILDREN - Robert Behr, MD, PhD¹, Mohan Kameswaran, MD, PhD²; ¹Department of Neurosurgery, University Medicine Marburg, Klinikum Fulda, Campus Fulda, Germany, ²Madras ENT Research Foundation, Chennai, India

102: PETROUS SLOPE: QUANTIFYING THE EXPOSURE OF TRAUTMANN'S TRIANGLE - Melissa Stamates, MD¹, Anita Bhansali, MD¹, Ricky Wong, MD²; ¹University of Chicago Medical Center, ²North Shore University Health System

103: TRANSCOCHLEAR APPROACH TO RESECTION OF CEREBELLOPONTINE ANGLE TUMORS: PATIENT SELECTION, SURGICAL TECHNIQUE, AND OUTCOMES - [Stephanie E Teng, MD](#), David R Friedmann, MD, Sean O McMenomey, MD, John G Golfinos, MD, J. Thomas Roland Jr., MD; New York University Medical Center

Proffered Papers 15

Palomino 10

MODERATORS: Andrew S. Little, MD & Allan D. Vescan, MD, MSc, FRCSC

104: EXTENT OF ENDOSCOPIC RESECTION FOR ANTERIOR SKULL BASE TUMORS: AN MRI-BASED VOLUMETRIC ANALYSIS - [Ian Koszewski, MD](#), Gregory Avey, MD, Lucas Leonhard, BS, Azam Ahmed, MD, Matthew Hoffman, MD, PhD, Timothy McCulloch, MD; University of Wisconsin School of Medicine and Public Health

105: THE ENDOSCOPIC ENDONASAL APPROACH (EEA) IN THE MANAGEMENT OF RECURRENT CRANIOPHARYNGIOMAS - [Mazda Turel, MD](#), Ivan Radovanovic, MD, Allan D. Vescan, MD, MSc, FRCSC, Gelareh Zadeh, MD, Fred Gentili, MD; Toronto Western Hospital

107: ROLE OF SKULL BASE SURGERY FOR CRANIOPHARYNGIOMAS - [Kenji Ohata, MD, PhD](#), Hikroki Morisako, MD, PhD, Hiroyuki Goto, MD, Takeo Goto, MD, PhD; Department of Neurosurgery Osaka City University

108: COMBINED ENDONASAL - TRANSORBITAL APPROACHES TO THE SKULL BASE: A SINGLE STAGE MINIMALLY INVASIVE TECHNIQUE FOR ANTERIOR CRANIAL FOSSA PATHOLOGY - [Jordina Rincon-Torroella, MD¹](#), Karim Refaey, MD¹, Kofi D Boahene, MD, MS², Alfredo Quinones-Hinojosa, MD¹; ¹Department of Neurosurgery, Johns Hopkins Hospital, ²Department of Otolaryngology - Head and Neck Surgery, Johns Hopkins Hospital

109: HEMI-TRANSEPTAL APPROACH FOR PITUITARY SURGERY: LONG TERM FOLLOW-UP STUDY - [Naif Fnais, MD¹](#), Susan Edionwe, MD², Salvatore Di Maio, MD³, Anthony Zeitouni, MD², Denis Sirhan, MD², Marc A Tewfik²; ¹King Saud University and McGill University Health Centre, ²McGill University Health Centre, ³Jewish General Hospital

110: ENDOSCOPIC ENDONASAL SURGERY FOR CRANIOPHARYNGIOMAS - [Hiroyoshi Akutsu, MD, PhD¹](#), Shuho Tanaka, MD, PhD², Tetsuya Yamamoto, MD, PhD¹, Takuma Hara, MD¹, Hiroyoshi Kino, MD¹, Hidetaka Miyamoto, MD², Masahide Matsuda, MD, PhD¹, Shingo Takano, MD, PhD¹, Akira Matsumura, MD, PhD¹; ¹Department of Neurosurgery, University of Tsukuba, ²Department of Otolaryngology, University of Tsukuba

111: SURGICAL MANAGEMENT OF RATHKE'S CLEFT CYSTS - Michelle Lin, [Daniel A Donoho, MD](#), Gabriel Zada, MD; University of Southern California

112: DIFFERENT APPROACHES AND OUTCOME OF SURGERY FOR TUMORS OF THE LATERAL AND THIRD VENTRICLE: AN INSTITUTIONAL SERIES OF 42 PATIENTS. - Sherif Elwatidy, Professor, [Abdulrahman Albakr](#), Medical, student, Safdar Malik, MD; King Saud University

Proffered Papers 16

Moor 2

MODERATORS: Francois Lavigne, MD & Vikram Prabhu, MD

113: PREOPERATIVE DIAGNOSIS OF VAGAL AND SYMPATHETIC CERVICAL SCHWANNOMAS BASED ON RADIOGRAPHIC FINDINGS - [Kathryn M Van Abel, MD](#), Christopher S Graffeo, MD, Jonathan M Morris, MD, Jamie J Van Gompel, Eric J Moore, MD, Daniel L Price, Jan L Kasperbauer, MD, Jeffrey R Janus, Kerry D Olsen, Michael J Link; Mayo Clinic

114: EVOLUTION OF SURGICAL APPROACH AND MANAGEMENT STRATEGY IN PETROCLIVAL MENINGIOMAS OVER 20 YEARS - [Jun-Ting Zhang](#); Beijing Tiantan Hospital, Capital Medical University, China

115: TRIGEMINAL NEURALGIA AND NEUROPATHY IN LARGE SPORADIC VESTIBULAR SCHWANNOMAS - [Brian A Neff, MD](#), Michael J Link, MD, Matthew L Carlson, MD, Jamie J Van Gompel, MD, Colin W Driscoll, MD; Mayo Clinic, Rochester

116: TOXICITY OF GAMMA KNIFE RADIOSURGERY MAY BE GREATER IN PATIENTS WITH LOWER CRANIAL NERVE SCHWANNOMAS - [Rawee Ruangkanhasetr, MD²](#), Michelle Alonso-Basanta, MD, PhD¹, Suneel N Nagda, MD¹, Geoffrey A Geiger, MD¹, James D Kolker, MD¹, Douglas C Bigelow, MD¹, Michael J Ruckenstein, MD¹, John Y Lee, MD¹; ¹University of Pennsylvania, ²University of Pennsylvania, visiting instructor from Faculty of Medicine, Ramathibodi Hospital Mahidol University, Thailand

117: ENDOSCOPIC ENDONASAL TRANSCLIVAL APPROACH VS DUAL TRANSORBITAL PORT TECHNIQUE FOR CLIP APPLICATION TO THE POSTERIOR CIRCULATION: AN ANATOMIC AND CADAVERIC CEREBRAL PERFUSION SIMULATION STUDY - Jeremy Ciporen¹, [Brandon Lucke-Wold²](#), Justin Cetas¹, Aclan Dogan¹, William Cameron¹; ¹Oregon Health and Science University, ²West Virginia University

118: PETROCLIVAL MENINGIOMA GROWTH PATTERNS - [Jacob B Hunter](#), Robert J Yawn, Ray Y Wang, Brendan P O'Connell, Matthew L Carlson, Kyle D Weaver, George B Wanna; Vanderbilt University Medical Center

119: GAMMA KNIFE STEREOTACTIC RADIOSURGERY FOR TRIGEMINAL NEURALGIA SECONDARY TO RECURRENT SKULL BASE MALIGNANCIES - [Jack Phan, MD, PhD](#), Paul Brown, MD, Guha-Thakurta Nandita, Rosenthal I David, MD, Adam S Garden, MD, Gary B Gunn, Clifton D Fuller, Jing Li, MD, PhD, Amol Ghia, MD, James Yang, PhD, Dershan Luo, PhD, Shirley Su, MD, Ehab Hanna, MD, Franco DeMonte; M.D. Anderson Cancer Center

120: OBJECTIVE SIGNATURES OF ENDOSCOPIC SURGICAL PERFORMANCE. - [Richard A Harbison, MD](#), Angelique Berens, MD, Anthony Law, MD, PhD, Mark Whipple, Blake Hannaford, PhD, Kris Moe, MD; University of Washington

121: TWO-DIMENSIONAL PLANAR MEASUREMENTS VERSUS THREE-DIMENSIONAL VOLUMETRIC MEASUREMENTS IN DEFINING GIANT ADENOMA SURGERY OUTCOMES - [Muhammad O Chohan, MD¹](#), Ariana M Levin, MS², Ranjodh Singh, BPhil, BSc², Zhiping Zhou, PhD³, Carlos L Green, BS⁴, Jacob J Kazam, MD⁴, Apostolos J Tsiouris, MD⁴, Vijay K Anand, MD⁵, Theodore H Schwartz, MD⁶; ¹Department of Neurosurgery, Memorial Sloan-Kettering Cancer Center, 1275 York Ave, New York, NY, ²Joan and Sanford I. Weill Medical College of Cornell University, ³Department of Neurological Surgery, Weill Cornell Medical College, New York Presbyterian Hospital, New York, NY, USA, ⁴Department of Neuroradiology, Weill Cornell Medical College, New York Presbyterian Hospital, New York, NY, USA, ⁵Department of Otolaryngology-Head and Neck Surgery, New York Presbyterian Hospital, New York, New York, USA, ⁶Department of Neurological Surgery, Neurology and Neuroscience, Weill Cornell Medical College, New York Presbyterian Hospital, New York, NY, USA

5:00 pm – 5:45 pm **CONCURRENT SESSIONS**

BRAINSTORMING SESSION 2: Choosing the Right Metrics

Palomino 8

NEW THIS YEAR! In this *Brainstorming Session* come help generate and participate in an open discussion of the best metrics for assessing value in skull base surgery. The goal of the session is to develop a list of value metrics that can be further developed by the appropriate NASBS committees.

- A. Pituitary Surgery – *Manish K. Aghi; Amir R. Dehdashti; John Jane; Daniel M. Prevedello; Deanna Sasaki-Adams; Gelareh Zadeh*
- B. Sinonasal Malignancy – *Devyani Lal; John Y.K. Lee; Derrick Lin; James Palmer; Shirley Y. Su; Eric W. Wang*
- C. Vestibular Schwannoma – *Fred Barker; Matthew Luke Carlson; Peter Gooderham; Carl Heilman; James K. Liu; Jacques J. Morcos; Fred Telischi; Jamie Joseph Van Gompel; George Wanna; Yu Lan Mary Ying; A. Samy Youssef*

**COACHING SESSION 2: Posterior Fossa Tumors Palomino 9
(Acoustic Neuroma, MD, Cerebellopontine Angle, MD, Petroclival)**

Palomino 9

MODERATOR: Marc Schwartz, MD

The *Coaching Session* is new this year and is an opportunity to provide constructive criticism regarding surgical technique and provide discussion on short surgical videos.

6:00 pm – 7:00 pm **New Member Reception with Leadership** (Invitation Only)

South Pool Upper West Deck

7:00 pm – 9:30 pm **NASBS Western at Copper Canyon**
Badges must be worn to enter the event.

Copper Canyon

SUNDAY, FEBRUARY 14, 2016

6:45 am – 7:00 am	Continental Breakfast	<i>Palomino East Foyer</i>
6:00 am – 12:30 pm	Registration Open	<i>East Foyer D-H</i>
7:00 am – 7:45 am	Committee Meetings	<i>Palomino 8, 9, 10</i>
7:45 am – 8:00 am	Transition Break	
8:00 am – 9:00 am	PROFFERED PAPER SESSIONS 17-20	

Proffered Papers 17*Palomino 8*

MODERATORS: Ziv Gil, MD & Marc Schwartz, MD

122: ROLE OF NEOADJUVANT CHEMOTHERAPY IN LOCALLY ADVANCED MALIGNANCIES INVOLVING THE OLFACTORY CREST REGION. - [Ankit D Mahuvakar, MS, DNB](#); Tata Memorial Hospital, Mumbai

123: INCREASED OPERATIVE TIME FOR BENIGN CRANIAL NERVE TUMOR RESECTION CORRELATES WITH INCREASED MORBIDITY POSTOPERATIVELY - Brandon McCutcheon, MD, Panos Kerezoudis, Patrick Maloney, MD, [Meghan E Murphy, MD](#), Kendall Snyder, Mohamad Bydon; Mayo Clinic

124: IMPACT OF DURAL AND OLFACTORY NERVE RESECTION ON SINONASAL MALIGNANCIES WITH SKULL BASE ENCROACHMENT - [Hedyeh Ziai](#), Terence Fu, Eugene Yu, David Goldstein, Eric Monteiro, Allan Vescan, MD, MSc, FRCSC, Ian Witterick, Gelareh Zadeh, Fred Gentili, John R de Almeida; University of Toronto

125: OUTCOMES OF ENDOSCOPIC VERSUS OPEN APPROACHES FOR SINONASAL MALIGNANCIES - [Alpen B Patel, MD](#), Samir H Patel, MD, Amar Miglani, MD, Naresh P Patel, MD, Richard E Hayden, MD, Michael L Hinni, MD, Devyani Lal, MD; Mayo Clinic

126: PATIENT AND HOSPITAL FACTORS ARE ASSOCIATED WITH POSTOPERATIVE OUTCOMES AND HOSPITAL CHARGES IN PATIENTS UNDERGOING TRANSSPHEOIDAL SURGERY FOR PITUITARY ADENOMAS: AN UPDATE FROM THE NATIONWIDE INPATIENT SAMPLE - [Daniel A Donoho, MD](#)¹, Andrew Platt, MD², Diana Jiang¹, John Carmichael, MD¹, Steven Cen, PhD¹, William J Mack, MD, MS¹, Gabriel Zada, MD¹; ¹University of Southern California, ²University of Chicago

127: SINONASAL NEUROENDOCRINE NEOPLASMS: HISTOPATHOLOGIC DIFFERENTIATION AND TREATMENT OUTCOMES - [Liuba Soldatova](#), Raewyn Campbell, MD, Ricardo L Carrau, MD, Daniel M Prevedello, MD, Leo F Ditzel Filho, MD, Bradley A Otto; Wexner Medical Center at The Ohio State University

Proffered Papers 18*Palomino 9*

MODERATORS: John R. de Almeida, MD, MSc, FRCSC & Anand Germanwala, MD

128: THE ROLE OF DIFFUSION TENSOR IMAGING IN SKULL BASE SURGERY - [Amin Kassam, MD](#), Melanie B Fukui, MD, Martin J Corsten, MD, Richard A Rovin, MD, John Jennings, MD; Aurora Neuroscience Innovation Institute

129: BLEEDING RISK VERSUS THROMBOEMBOLIC RISK IN PATIENTS UNDERGOING POSTERIOR FOSSA SKULL BASE SURGERY IN THE MODERN ERA: RESULTS OF AN AGGRESSIVE CHEMICAL VTE PROPHYLAXIS PARADIGM. - [Douglas A Hardesty, MD](#), Tsinsue Chen, MD, Scott T Brigeman, George F Lasker, MS, Randall W Porter, MD, Robert F Spetzler, MD; Barrow Neurological Institute

130: THE ROLE OF NEUROENDOSCOPE WITH FLUORESCENCE ANGIOGRAPHY IN THE ANEURYSMAL SURGERY LOCATED IN THE SKULL BASE LESION - [Hiroyuki Kinouchi, MD, PhD](#), Hideyuki Yoshioka, MD, PhD, Takuma Wakai, MD, PhD, Masakazu Ogiwara, MD, PhD, Koji Hashimoto, MD, Hiroaki Murayama, MD, Kazuya Kanemaru, MD, PhD; University of Yamanashi

131: FIRST IN HUMAN APPLICATION OF A NOVEL INTEGRATED IMAGE GUIDED ROBOTIC OPTICAL TELESCOPIC MICROSCOPY POSITIONING SYSTEM: CEREBROVASCULAR SURGICAL APPLICATIONS - [Amin Kassam, MD](#)¹, Martin J Corsten, MD¹, Guillaume Curaudeau, BBA², Melanie B Fukui, MD¹, Richard Rovin¹; ¹Aurora Neuroscience Innovation Institute, ²Wayne State University School of Medicine

132: AN ALGORITHM FOR EXPLORING SPONTANEOUS CSF LEAKS: NOT ALL LEAKS ARE CREATED EQUAL - [Desmond A Brown, MD, PhD](#), Patrick R Maloney, MD, Brittany T Major, MS, Laurence J Eckel, MD, Patrick H Leutmer, MD, Kelly K Koeller, MD, Jamie J Van Gompel, MD, Michael J Link, MD; Mayo Clinic

133: UTILITY OF INTRAOPERATIVE MRI IN SKULL BASE SURGERY - [Stephen Reintjes](#), Ramsey Ashour, MD, Sananthan Sivakanthan, BS, Harry Van Loveren, MD, Siviero Agazzi, MD; University of South Florida

Proffered Papers 19

Palomino 10

MODERATORS: Jeremy Ciporen, MD & Peter Gooderham, MD

134: THE COMBINED ENDOSCOPIC TRANSCERVICAL - TRANSORAL ROBOTIC APPROACH FOR RESECTION OF PARAPHARYNGEAL SPACE TUMORS - I Duek, Moran Amit, G Svir, [Gil Ziv](#); RAMBAM HEALTH CARE CAMPUS

135: A VALIDATION STUDY EVALUATING THE ROLE OF SIMULATION IN ENDOSCOPIC ENDONASAL SKULL BASE SURGERY. - Georgios Klironomos, MD, MSci, PhD¹, [Abdullah Alobaid, MD²](#), Lior Gonen, MD¹, Eric Monteiro¹, Allan Vescan, MD, MSc, FRCSC¹, Gelareh Zadeh¹, Fred Gentili, MD¹; ¹University of Toronto, ²North Shore University Hospital, New York

136: RECONSTRUCTION FOLLOWING EEA: A 0.5% CSF LEAK RATE IN 200 CONSECUTIVE CASES. - Amin B Kassam, MD, [Martin J Corsten, MD](#); Aurora Neuroscience Innovation Institute

137: PREVENTION OF GRAFT MIGRATION WITH TRI-LAYER BUTTON-FAT GRAFT: EXPERIENCE WITH 25 PATIENTS. - [Daniel W Flis, MD](#), Michael I Orloff, Manish K Aghi, MD, Phillip V Theodosopoulos, MD, Michael W McDermott, MD, Ivan H El-Sayed, MD; University of California, San Francisco

138: MULTI-LAYER RECONSTRUCTION OF THE ENDONASAL SKULL BASE WITHOUT A AUTOGRAFTS OR A RIGID BUTTRESS - [Michaela Lee, MD¹](#), Conner Massey, MD², Karthik Dwarki, BS³, Ameet Singh, MD², Zachary Litvack, MD¹; ¹Department of Neurosurgery, George Washington University Medical Center, ²Rhinology and Skull Base Surgery, Division of Otolaryngology, George Washington University Medical Center, ³George Washington University School of Medicine

Proffered Papers 20

Moor 2

MODERATORS: Arif S. Janjua, MD, FRCSC & Nevo Margalit, MD

142: INCREASED LONG-TERM MORTALITY IN TYPE 2 DIABETICS UNDERGOING SURGICAL RESECTION OF A WHO GRADE I MENINGIOMA - Arash Nayeri, Silky Chotai, Philip Brinson, Marc Prablek, [Lola Chambless, MD](#); Vanderbilt University Medical Center

139: RISK OF SEIZURES IN EEA - Nicolas K Khattar, MD, [Joseph D Chabot, MD](#), Georgios A Zenonos, MD, Nathan T Zwagerman, MD, Ezequiel D Goldschmidt, MD, PhD, Juan C Fernandez-Miranda, MD, Eric W Wang, MD, Carl H Snyderman, MD, MBA, Paul A Gardner, MD; University of Pittsburgh School of Medicine

140: POSTOPERATIVE SINUS THROMBOSIS IN THE SETTING OF SKULL BASE SURGERY - [Carolina G Benjamin, MD](#), Rajeev Sen, BS, Donato Pacione, MD, John Golfinos, MD, Chandra Sen, MD, J. Thomas Roland, MD, Sean McMenomey, MD; NYU Langone Medical Center

141: FAILURE OF SKULL BASE DEFECTS RECONSTRUCTION AFTER ENDONASAL SURGERY. COMPLICATIONS, TREATMENT OPTIONS AND OUTCOMES. - [Bakhtuyar Pashaev, MD¹](#), Valery Danilov, MD², Gulnar Vagapova, MD³, Vladimir Bochkarev¹, Arseniy Pichugin¹, Andrey Alekseev¹, Farida Nasibullina³; Interregional Clinical Diagnostic Center, ²Kazan Medical State University, ³Kazan Medical state Academy

143: COMPARISON OF POSTOPERATIVE COMPLICATION BETWEEN NASOSEPTAL FLAP AND RESCUE FLAP - [Hiroyuki Ozawa¹](#), Toshiki Tomita¹, Yoshihiro Watanabe¹, Mariko Sekimizu¹, Fumihiro Ito¹, Yuichi Ikari¹, Masahiro Toda², Kaoru Ogawa¹; ¹Department of Otolaryngology, Head and Neck Surgery, Keio University School of Medicine, ²Department of Neurosurgery, Keio University School of Medicine

144: DEVELOPMENT OF A PATHWAY PROTECTION DEVICE FOR ENDOSCOPIC SKULL BASE SURGERY - [Kris S Moe, MD¹](#), Louis K Kim, MD¹, Carl Snyderman, MD, MBA², Randall Bly, MD¹, Laligam N Sekhar, MD¹; ¹University of Washington, ²University of Pittsburgh

9:00 am – 10:00 am **PANEL DISCUSSIONS**

PANEL DISCUSSION 17: Systematic Review of Sinonasal Malignancy/Best Treatment/Pre-Operative Chemo/Radiation

Palomino 8

MODERATOR: Jean Anderson Eloy, MD

SPEAKERS: Ricardo Carrau, MD; Peter Hwang, MD; Derrick Lin, MD

Sinonasal malignancies are rare and vary in behavior according to histology and anatomical location. Survival and optimal treatment for these lesions are thus uncertain in various cases. In this panel, international experts on sinonasal malignancies will discuss the optimal management for these lesions, and discuss survival rates based on anatomical site, patient demographics, and treatment modalities. Experts' advice on difficult cases will be presented.

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

1. Select the appropriate surgical approach (endoscopic transnasal, open transcranial, or combined endoscopic transnasal and open transcranial) for resection of sinonasal malignancies.
2. Learn the nuances in endoscopic endonasal resection of sinonasal malignancies.
3. Recognized which cases of sinonasal malignancies necessitate chemotherapy and radiotherapy as the primary treatment modality or adjuvant treatment.

PANEL DISCUSSION 18: Tumor Board: Clival Neoplasms

Palomino 9

MODERATOR: Paul Gardner, MD

SPEAKERS: Robert Behr, MD; Ivan El-Sayed, MD; Boštjan Lanišnik, MD, PhD

- Approaches to the Clivus and Their History – *Robert Behr, MD*
- Open Transoral and Combined Endonasal Endooral approach: advantages and limitations – *Ivan El-Sayed, MD*
- The Endoscopic Endonasal Approach (EEA) to the Clivus: Advantages and Limitations – *Paul Gardner, MD*
- Clival Reconstruction – *Boštjan Lanišnik, MD, PhD*
- Panel Discussion: Unusual Clival Neoplasms and Their Management

This session is designed to cover surgical approaches for clival neoplasms and help the participant understand the variety of pathologies and approaches, the advantages and limitations of anterior approaches and how these approaches compliment each other and fit into the armamentarium of skull base approaches.

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

1. To understand the evolution of approaches to the clivus and how/when these approaches can be applied.
2. Understand the role of the transoral approach for clival lesions.
3. Review the challenges of clival reconstruction and vascularized options.

PANEL DISCUSSION 19: Skull Base Economics

Palomino 10

MODERATOR: Adam Folbe, MD

SPEAKERS: John Golfinos, MD; Kim Pollock; Carl Snyderman, MD, MBA

- Introduction – *Adam Folbe, MD*
- Case Scenarios and Examples – *Carl Snyderman, MD, MBA*
- Case Scenarios and Examples – *John Golfinos, MD*
- Present Consensus Statement and Recommended Codes – *Kim Pollock*

This session will review current coding practices among skull base surgeons when performing combined cases, and provide updated “best coding” recommendations. The discussion will be aimed towards practicing Neurosurgeons and Otolaryngologists who perform combined surgeries.

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

1. Employ proper billing strategies for endoscopic skull base surgery.
2. Use the consensus statement to justify charges to insurance companies.
3. Implement billing strategies for endoscopic skull base surgeries.

PANEL DISCUSSION 20: Controversies in the Management of Trigeminal Schwannomas

Moor 2

MODERATOR: Michael Chicoine, MD

SPEAKERS: Juan Barges-Coll, MD; Samuel Barnett, MD; Masahiro Toda, MD, PhD

- Introduction – *Michael Chicoine, MD*
- Transcranial Approaches – *Mashahiro Toda, MD, PhD*
- Endonasal Endoscopic Approaches – *Juan Barges-Coll, MD*
- Radiosurgical Options – *Samuel Barnett, MD*
- Questions & Answers, Overview - Panel Discussion of Cases – *All Speakers*

Current treatment options including transcranial approaches, endonasal endoscopic approaches, and radiosurgical techniques for the management of trigeminal schwannomas will be reviewed. Neurosurgeons, otolaryngologists, radiation oncologists, and other clinicians involved in the care of patients with trigeminal schwannomas should attend.

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

1. To articulate the natural history and appropriate clinical and imaging evaluation for patients with trigeminal schwannomas.
2. To differentiate the appropriate surgical options including endoscopic and transcranial approaches for patients with trigeminal schwannomas.
3. Formulate appropriate strategies for the radiosurgical treatment of patients with trigeminal schwannomas.

10:00 am – 10:30 am **Refreshment Break in Exhibit Hall**

10:30 am – 11:15 am **KEYNOTE LECTURE: Make The Impossible Possible**

Salon H&I

INTRODUCTION: Carl Snyderman, MD, MBA

KEYNOTE SPEAKER: Bill Strickland, CEO of Manchester Bidwell Corporation, Social Architect, Community Leader, and Visionary

11:15 am – 12:15 pm **3D Video Techniques**

Salon H&I

MODERATOR: Juan Fernandez-Miranda, MD

SPEAKERS: Mustafa Baskaya, MD; William Couldwell, MD, PhD; James Liu, MD

This special 3D session will review relevant surgical anatomy and technical nuances for improving patient outcomes during complex skull base procedures. Detailed clinical cases will be presented by surgical masters using 3D high-definition surgical videos to maximize the learning experience for the viewers.

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

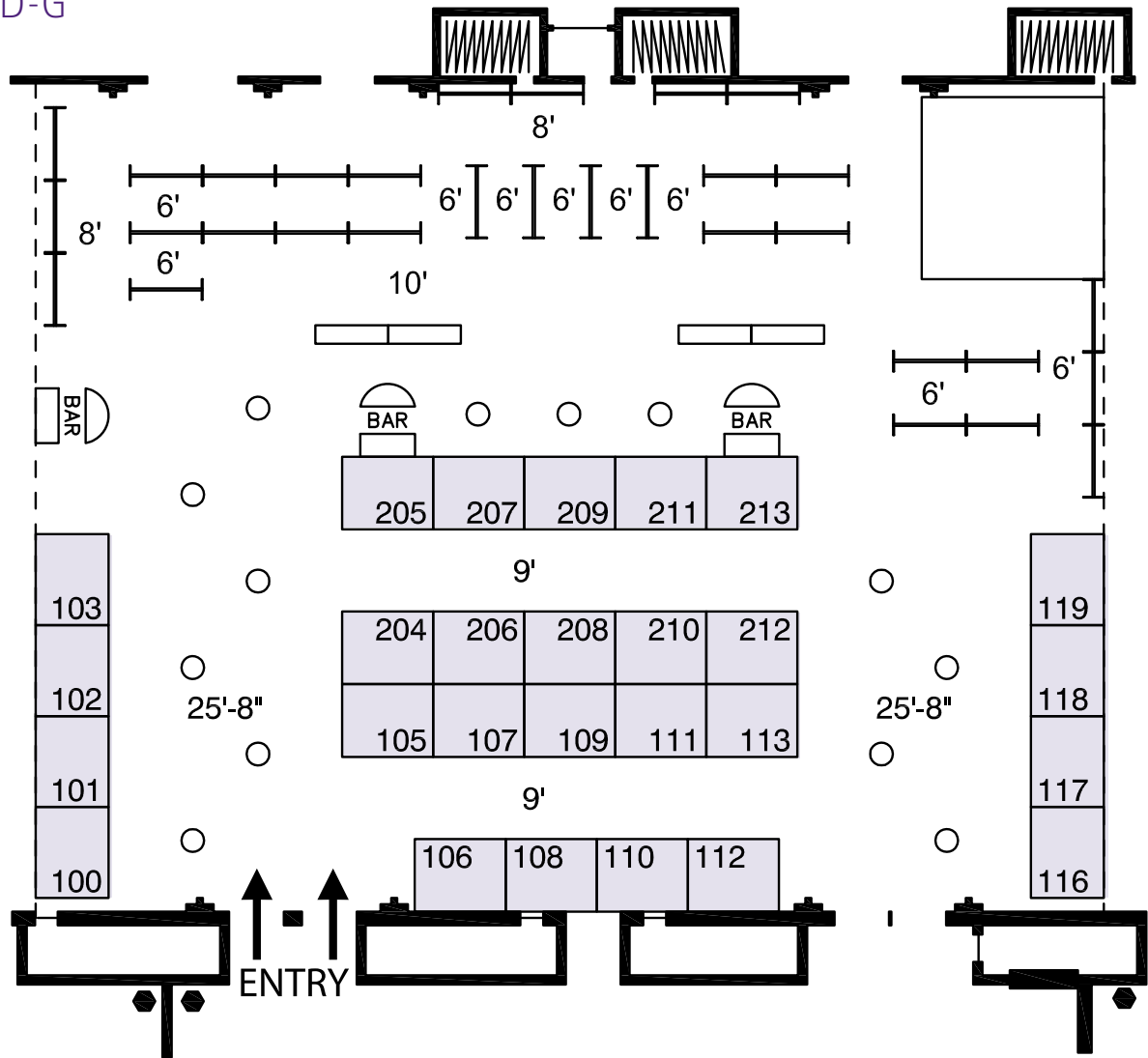
1. Outline general techniques and surgical approaches for complex skull base lesions.
2. Identify key anatomical landmarks for the performance of transcranial and endonasal skull base approaches to the anterior, middle, and posterior skull base.
3. Recognize operative nuances to advance patient safety.

12:15 pm – 12:30 pm **Closing Remarks**

Salon H&I

Exhibit Hall Floor Plan

SALON D-G



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Posters of Distinction

PD001: PARAPHARYNGEAL INTERNAL CAROTID ARTERY: A COMPARATIVE ANALYSIS OF SURGICAL EXPOSURE AND VASCULAR CONTROL VIA ENDOSCOPIC ENDONASAL, TRANSORAL AND TRANSCERVICAL APPROACHES – Kangsadarn Tanjararak, MD¹, Smita Upadhyay, MD², Thanakorn Thiensri, MD², Sawayot Rianmanee, MD², Jun Muto, MD², Daniel M Prevedello, MD², Bradley A Otto, MD², [Ricardo L Carrau, MD²](#); ¹Wexner Medical Center at The Ohio State University, Ramathibodi Hospital at Mahidol University, ²Wexner Medical Center at The Ohio State University

PD003: ANATOMIC VARIATIONS IN PITUITARY ENDOCRINOPATHIES: IMPLICATIONS FOR THE SURGICAL CORRIDOR – [Edward C Kuan, MD](#), Frederick Yoo, MD, Won Kim, MD, Thomas E Heineman, MD, Karam W Badran, MD, Marvin Bergsneider, MD, Marilene B Wang, MD; UCLA

PD004: MORPHOMETRIC ANALYSIS OF LINGULA SPHENOIDALIS AND ITS SURGICAL RELEVANCE – [Eleonora Marcati, MD¹](#), James Roebker¹, Norberto Andaluz, MD¹, Sebastien C Froelich, MD², Lee A Zimmer, MD, PhD³, Jeffrey T Keller, PhD¹; ¹Department of Neurosurgery, University of Cincinnati College of Medicine, Cincinnati, Ohio, ²Department of Neurosurgery, Lariboisière Hospital, Paris, ³Department of Otolaryngology Head & Neck Surgery, Cincinnati, Ohio

PD005: DEVELOPMENT OF VESTIBULAR SCHWANNOMA XENOGRAFT ZEBRAFISH MODEL FOR IN VIVO ANTI-TUMOR DRUG SCREENING – [Sewon Jeong, MD](#); Yonsei University College of Medicine

PD006: NASAL SEPTUM MUCOEPIDERMOID CARCINOMA WITH INVOLVEMENT OF THE NASAL DORSUM MUCOSA: REPORT OF TWO CASES AND LITERATURE REVIEW – [Salman Sayed¹](#), Marcelo C Pereira, MD², Tyler J Kenning, MD³, Carlos D Pinheiro-Neto²; ¹Albany Medical College, Albany, New York, ²Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, New York, ³Department of Neurosurgery, Albany Medical Center, Albany, New York.

PD007: INTRAOPERATIVE IMAGE GUIDANCE IN TRANSORAL ROBOTIC SURGERY – A PILOT STUDY – [Andrew K Ma, MD¹](#), Michael J Daly, PhD², Jimmy Qiu, MASc², Harley H Chan, PhD², David P Goldstein, MD, MSc, FRCSC, FACS¹, Jonathan C Irish, MD, MSc, FRCSC, FACS¹, John R De Almeida, MD, MSc, FRCSC¹; ¹Department of Otolaryngology, University of Toronto, ²Guided Therapeutics, TECHNIA Institute

PD008: ENDOVASCULAR EXTRACTION OF A NEEDLE FROM THE INTERNAL CAROTID ARTERY: A NOVEL APPROACH TO A CONTROVERSIAL DENTAL MISADVENTURE – [Jonathan Giurintano, MD](#), Jessica Somerville, MD, Merry Sebelik, MD, Courtney Shires, MD; University of Tennessee Health Science Center

PD009: MICROSCOPIC AND ENDOSCOPIC ANATOMY OF THE FORAMEN MAGNUM AND CRANIO-VERTEBRAL JUNCTION IN A TRANSTUBULAR FAR LATERAL APPROACH – Alexander I Evins, MD, Michael A Cohen, MD, Philip E Stieg, PhD, MD, [Antonio Bernardo, MD](#); Weill Cornell Medical College

PD010: UNILATERAL TAILORED FRONTO-ORBITAL APPROACH FOR GIANT OLFACTORY GROOVE MENINGIOMAS: TECHNICAL NUANCES – [Raghuram Sampath, MD](#), Jacob L Freeman, MD, A. Samy Youssef, MD; University of Colorado

PD011: METASTATIC PROSTATE CARCINOMA AND SKULL BASE PATHOLOGY – [Steven Newman, MD](#); University of Virginia

PD012: CLINICOPATHOLOGIC FEATURES OF MEN1 NEOPLASMS – [Desmond A Brown, MD, PhD¹](#), Lydia P Wheeler, BS¹, Brittany T Major, MS², Naykky Singh Ospina, MD², Jamie J Van Gompel, MD²; ¹Mayo Clinic Department of Neurological Surgery, ²Mayo Clinic

PD013: MOSFETS FOR COCHLEAR DOSIMETRY IN ANIMAL IRRADIATION – [Si Chen, MD¹](#), Christine Dinh, MD¹, Perry Johnson, PhD², Kyle Padgett, PhD², Nagy Elsayyad, MD², Esperanza Bas, PhD¹, Fred Telischi, MD¹; ¹University of Miami Department of Otolaryngology, ²University of Miami Department of Radiation Oncology

PD014: DELAYED CSF RHINORRHEA AFTER GAMMA KNIFE RADIOSURGERY WITH OR WITHOUT PRECEDING TRANSSPHENOIDAL HYPOPHYSECTOMY FOR PITUITARY PATHOLOGY – [Avital Perry, MD](#), Christopher S Graffeo, MD, William R Copeland III, MD, Kathryn M Van Abel, MD, Matthew L Carlson, MD, Michael J Link, MD; Mayo Clinic

PD015: MUSCULOCUTANEOUS SUBMENTAL FLAP FOR ANTERIOR AND LATERAL SKULL BASE RECONSTRUCTION – [Dylan C Lippert, MD](#), Brittany E Howard, MD, Carlene B Donald, PAC, Thomas H Nagel, MD, Richard E Hayden, MD; Mayo Clinic

PD016: FASCIA LATA FREE FLAP ANASTOMOSED TO THE SUPRATROCHLEAR SYSTEM FOR RECONSTRUCTION OF THE ANTERIOR SKULL BASE: A FEASIBILITY STUDY. – [Camilo Reyes, MD¹](#), Michael Fritz², Arturo Solares¹; ¹Georgia Regents University - Otolaryngology- Head and Neck Surgery, ²Cleveland Clinic - Otolaryngology

Posters of Distinction

PD017: NASAL CAVITY FLOOR FREE MUCOSAL GRAFT FOR ENDOSCOPIC RECONSTRUCTION OF THE SELLAR REGION: TECHNICAL NOTE AND RESULTS IN CONSECUTIVE 27 CASES – Maria Peris Celda, MD, PhD¹, Mark Chaskes², Robert D Engle, MD³, Tyler J Kenning, MD¹, [Carlos D Pinheiro-Neto, MD, PhD³](#); ¹Department of Neurosurgery, Albany Medical Center, Albany, New York, ²Medical Student, Albany Medical College, Albany, New York, ³Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, New York.

PD018: CONTRALATERAL TRANSMAXILLARY CORRIDOR AS AN EXTENSION TO THE ENDOSCOPIC ENDONASAL APPROACH TO THE PETROUS APEX – [Chirag R Patel, MD¹](#), Juan C Fernandez-Miranda, MD², Eric W Wang, MD², Paul A Gardner, MD², Carl H Snyderman, MD, MBA²; ¹Loyola University Medical Center, ²University of Pittsburgh Medical Center

PD019: MICROSURGICAL TREATMENT OF STYLOIDOGENIC JUGULAR VENOUS COMPRESSION SYNDROME – [Randy Hlubek, MD](#), M. Yashar S Kalani, MD, PhD, Michael R Levitt, MD, Felipe Albuquerque, MD, Peter Nakaji, MD; Barrow Neurological Institute

Poster Sessions

POSTERS WILL BE OPEN DURING ALL EXHIBIT HALL HOURS IN THE EXHIBIT ROOM.

P001: FIRST OLFATORY FIBER AS AN ANATOMICAL LANDMARK FOR FRONTAL SINUS SURGERY - Smita Upadhyay, MD, Lamia Buohliqah, MD, Gerival V Junior, MD, Bradley A Otto, MD, Daniel M Prevedello, MD, [Ricardo L Carrau](#); Ohio State University

P002: ENDOSCOPIC ENDONASAL AND TRANSCILIARY SUPRA-ORBITAL APPROACHES TO PARASELLAR STRUCTURES: A COMPARATIVE CADAVERIC STUDY OF SURGICAL WORKING AREA, DEGREES OF FREEDOM AND ENDOSCOPIC VISUALIZATION – Teddy Totimeh, MD¹, Surya Pandey, BS², Ronke Ogunbameru, MD³, Joshua Emerson, BS⁴, Chester Griffiths⁴, Daniel F Kelly⁴, [Garni Barkhoudarian, MD](#)⁴; ¹DEPARTMENT OF SURGERY KORLE BU TEACHING HOSPITAL, ²Drexel University, ³Regional center for Neurosurgery, UDUTH, Sokoto, Nigeria, ⁴John Wayne Cancer Institute

P003: RECTUS CAPITIS LATERALIS: AN IMPORTANT LANDMARK IN POSTEROLATERAL APPROACHES TO THE CRANIOCERVICAL JUNCTION – [Michael A Cohen, MD](#), Brandon T Pagen, MD, Philip E Stieg, PhD, MD, Alexander I Evins, MD, Antonio Bernardo, MD; Weill Cornell Medical College

P004: ANATOMIC COMPARISON OF THE ENDONASAL AND TRANSPETROSAL APPROACHES FOR INTERPEDUNCULAR FOSSA ACCESS – [Kenichi Oyama](#)¹, Daniel M. Prevedello², Leo F. S. Ditzel Filho², Jun Muto², Ramazan Gun³, Edward E. Kerr², Bradley A. Otto³, Ricardo L. Carrau³; ¹Department of Neurosurgery, Teikyo University School of Medicine, ²Department of Neurological Surgery, The Ohio State University Wexner Medical Center, ³Department of Otolaryngology - Head & Neck Surgery, The Ohio State University Wexner Medical Center

P005: ANATOMICAL STUDY OF THE INTERNAL MAXILLARY ARTERY AT THE PTERYGOMAXILLARY FISSURE – Mamie Higgins, MD¹, Marcelo C Pereira, MD¹, Seungwoo Seo¹, Tyler Kenning, MD², [Carlos D Pinheiro-Neto, MD, PhD](#)¹; ¹Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, New York., ²Department of Neurosurgery, Albany Medical Center, Albany, New York.

P006: DEMOGRAPHIC COMPARISON OF PATIENTS UNDERGOING REPAIR OF ANTERIOR VERSUS LATERAL SPONTANEOUS SKULL BASE MENINGOENCEPHALOCELES – [Brice A Kessler, MD](#), Mark Abumoussa, Michael Cools, MD, Yap Edward, MD, Adam Zanation, MD, Deanna Sasaki-Adams, MD, MPH; University of North Carolina

P007: RARE CSF FISTULAS: THE ROLE OF STERNBERG'S CANAL, TYMPANO-MENINGEAL DUCT, THE GLOSSOPHARYNGEAL NERVE AND THE TYMPANIC CANAL. – [Robert Behr, MD, PhD](#)¹, Erich Hofmann, MD, PhD², Konrad Schwager, MD, PhD³; ¹Department of Neurosurgery, University Medicine Marburg, Klinikum Fulda, Campus Fulda, Germany, ²Department of Neuroradiology, University Medicine Marburg, Klinikum Fulda, Campus Fulda, Germany, ³ENT Department, University Medicine Marburg, Klinikum Fulda, Campus Fulda, Germany

P008: MINIMALLY INVASIVE PURELY ENDOSCOPIC APPROACH TO PTERYGOPALATINE FOSSA AND LATERAL ORBIT THROUGH A MIDDLE FOSSA EXTRADURAL ROUTE: A CADAVERIC STUDY. – Georgios Klironomos, MD, Msci, PhD, [Lior Gonen, MD](#), Alireza Mansouri, MD, Allan Vescan, MD, MSc, FRCSC, Fred Gentili, MD, Gelareh Zadeh, MD, PhD; University of Toronto

P009: A SURVEY OF THE VARIABLE ANATOMY OF THE PARASELLAR REGION WITH SPECIFIC EMPHASIS ON THE MIDDLE CLINOID PROCESS – [Akshay Sharma, BA](#)¹, Gabrielle Rieth, MS¹, Sunil Manjila, MD², Bulent Yapicilar, MD³; ¹Case Western Reserve University School of Medicine, ²University Hospitals, Case Medical Center, Case Western Reserve University, ³MetroHealth Medical Center, Case Western Reserve University

P010: VARIABILITY OF THE C3-C4 TRANSITIONAL AREA OF THE INTERNAL CAROTID ARTERY: TRANSCRANIAL AND ENDONASAL PROSECTION WITH NEURORADIOLOGICAL AND HISTOLOGICAL CORRELATION – [Eleonora Marcati, MD](#)², Sebastien C Froelich, MD¹, Norberto Andaluz, MD², James L Leach, MD³, Lee A Zimmer, MD, PhD⁴, Almaz Kurbanov, MD², Jeffrey T Keller, PhD²; ²Department of Neurosurgery, University of Cincinnati, Ohio, ¹Department of Neurosurgery, Lariboisière Hospital, Paris, ³Department of Radiology and Medical Imaging at Cincinnati Children's Hospital Medical Center, ⁴Department of Otolaryngology Head & Neck Surgery, Cincinnati, Ohio

P011: ENDOSCOPIC ENDONASAL APPROACH TO FORAMEN LACERUM: ANATOMICAL AND TECHNICAL NOTE – [Wei-Hsin Wang, MD](#)¹, Roger Mathias, MD¹, Paul A. Gardner, MD¹, Eric W. Wang¹, Carl H. Snyderman, MD, MBA², Juan C. Fernandez-Miranda, MD¹; ¹Department of Neurological Surgery, University of Pittsburgh, Pennsylvania, ²Department of Otolaryngology, University of Pittsburgh, Pennsylvania

P012: MICROSURGICAL ANATOMY OF THE MAXILLARY ARTERY AND HIGH FLOW BYPASS. – [Osamu Akiyama, MD](#), Satoshi Matsuo, MD, Marcos Chiarullo, MD, Abuzer Gungor, MD, Albert L Rhoton, Jr., MD; Department of Neurological Surgery University of Florida

P013: A DESTRUCTIVE CENTRAL SKULL BASE PROCESS IN A YOUNG PATIENT WITH SYSTEMIC ENDOCHONDROMATOSIS – [Neal Jackson, MD](#), Daniel Nuss, MD; LSU Health Sciences Center- New Orleans

P015: AN EXTREMELY RARE AND INSIDIOUS PARAPHARYNGEAL SPACE TUMOR – [Neal M Jackson, MD](#), Andrew McWhorter, MD, Sarah Pena, MD, Daniel W Nuss, MD; LSU Health Sciences Center- New Orleans

P016: ANTERIOR SKULL BASE GLOMANGIOMA-INDUCED OSTEOMALACIA. – Malia S Gresham¹, Yi J Zhang, MD, PhD², [Kathleen K Gallagher, MD](#)¹; ¹Baylor College of Medicine, ²Houston Methodist Hospital

Poster Sessions

POSTERS WILL BE OPEN DURING ALL EXHIBIT HALL HOURS IN THE EXHIBIT ROOM.

P017: AN AGGRESSIVE VARIANT OF FOLLICULAR THYROID CARCINOMA METASTASIZING TO THE SKULL BASE: CASE REPORT AND REVIEW OF THE LITERATURE – [Nyall London, MD, PhD¹](#), Nishant Agrawal, MD, FACS¹, Justin Bishop, MD², Murray Ramanathan Jr, MD, FACS¹; ¹Johns Hopkins University - Otolaryngology Head and Neck Surgery, ²Johns Hopkins University - Pathology and Otolaryngology Head and Neck Surgery

P018: A RARE COMPLICATION OF BEVACIZUMAB THERAPY FOR CEREBRAL RADIATION NECROSIS – [Aron Pollack, MD](#), Eric W Wang, MD, Carl H Snyderman, MD, MBA; University of Pittsburgh Medical Center, Center for Cranial Base Surgery

P019: CEREBRAL VASOSPASM FOLLOWING ENDOSCOPIC TRANSPHENOIDAL HYPOPHYSECTOMY IN THE TREATMENT OF IGG-4 RELATED LYMPHOCYTIC HYPOPHYSITIS – [Kaveh Karimnejad, MD](#), Justin M Sweeney, MD, Jastin L Antisdell, MD; Saint Louis University School of Medicine

P020: LUMBAR DRAINS DECREASE THE RISK OF POST-OPERATIVE CEREBROSPINAL FLUID (CSF) LEAK FOLLOWING EXTENDED ENDONASAL ENDOSCOPIC SURGERY FOR SUPRASellar MENINGIOMAS IN PATIENTS WITH HIGH BMI – [Salomon Cohen, MD¹](#), Theodore Schwartz, MD², Vijay Anand, MD³; ¹Departments of Neurosurgery National Institute of Neurology and Neurosurgery “Manuel Velasco Suarez”, Mexico, ²Departments of Neurosurgery, Otolaryngology and Neuroscience, Weill Cornell Medical College, New York Presbyterian Hospital, New York, NY, ³Departments of Otolaryngology, Weill Cornell Medical College, New York Presbyterian Hospital, New York, NY

P021: NECROTIZING EXTERNAL OTITIS: “MALIGNANT” ONCE MORE – [Daniel A Carlton, MD](#), Enrique Perez, MD, Eric E Smouha, MD; Mount Sinai Hospital

P022: BLINDNESS RESULTING FROM BISPHOSPHONATE RELATED OSTEONECROSIS OF THE SKULL BASE – Farhoud Faraji, PhD, [Joe Brunworth, MD](#); Saint Louis University School of Medicine

P023: CRANIOPHARYNGIOMA 0: A NEW ADDITION TO THE TUMOR CLASSIFICATION SCHEME – [Ali O Jamshidi, MD](#), Andre Beer Furlan, MD, Daniel Prevedello; The Ohio State University Medical Center

P026: CLINICAL AND PATHOLOGICAL OUTCOMES OF MULTILAYER RESECTION OF OLFACTORY NEUROBLASTOMAS VIA ENDOSCOPIC ENDONASAL APPROACH – [T Nakagawa¹](#), T Sakamoto¹, S Kodama², M Kobayashi³, N Hanai⁴, H Yokoi⁵, M Suzuki⁶; ¹Kyoto University, ²Oita University, ³Mie University, ⁴Aichi Cancer Center, ⁵Kyorin University, ⁶Nagoya City University

P027: FULLY ENDOSCOPIC MICROVASCULAR DECOMPRESSION FOR HEMIFACIAL SPASM – [Dmitriy Petrov, MD](#), John Lee, MD; University of Pennsylvania

P028: ENDOSCOPIC TRANSPHENOIDAL APPROACH TO PETROUS APEX LESIONS: OUR EXPERIENCE AND REVIEW OF LITERATURE – [Amit Shankar, DR¹](#), Edwin Mogere, DR¹, Roshan Verma, DR²; ¹Aga Khan university hospital, Nairobi, ²Post Graduate Institute of Medical education and Research(PGIMER)-Chandigarh, India

P029: ORBITAL APEX MUCOCELE CAUSING SUDDEN AND COMPLETE BLINDNESS: CASE REPORT AND REVIEW OF THE LITERATURE – [Nikita Gupta, MD](#), Yue L Ma, MD, Raj K Shrivastava, MD, Alfred M Illoreta, MD; Icahn School of Medicine at Mount Sinai

P030: ENDOSCOPIC ENDONASAL DECOMPRESSION OF THE MEDIAL ORBIT AND OPTIC CANAL: A RETROSPECTIVE ANALYSIS – [Mark Abumoussa](#), Jeffrey Aucoin, MD, Deanna Sasaki-Adams, MD; University of North Carolina at Chapel Hill

P031: PROTECTION OF THE CRANIAL BASE AFTER ENDOSCOPIC TRANSPHENOIDAL SKULL BASE SURGERY – Gurston Nyquist, MD, [David Hsu, MD](#), Kurren S Gill, BA, James J Evans, MD, Christopher Farrell, MD, Mindy Rabinowitz, MD, Marc Rosen, MD; Thomas Jefferson University

P032: NON-RANDOM SPATIAL CLUSTERING OF SPONTANEOUS ANTERIOR FOSSA MENINGOCELES AND ENCEPHALOCELES CAUSING CEREBROSPINAL FLUID LEAK – [Richard D Murray, MD](#), Rachel Friedlander, Samuel Hanz, Vijay K Anand, MD, Theodore H Schwartz, MD; New York Presbyterian/ Weill Cornell Brain and Spine

P033: EXPANDED ENDONASAL APPROACH FOR ANTERIOR SKULL BASE AND CENTRAL SKULL BASE LESIONS: OUTSTRETCHED HANDS OF OTORHINOLARYNGOLOGISTS – [Pawan Singhal, MBBS, MS, DNB](#); SMS Medical College, Jaipur

P034: MINIMIZING NASAL TRAUMA IN ENDOSCOPIC ANTERIOR CRANIAL BASE SURGERY: PRESERVATION OF BOTH MIDDLE TURBINATES – Mamie Higgins, MD¹, Tyler Kenning, MD², [Carlos D Pinheiro-Neto, MD, PhD¹](#); ¹Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, New York., ²Department of Neurosurgery, Albany Medical Center, Albany, New York.

P035: COMBINED ENDONASAL AND TRANSORBITAL APPROACH FOR MANAGEMENT OF SINONASAL INVERTING PAPILLOMA WITH EXTENSIVE FRONTAL SINUS INVOLVEMENT – [Monirah Albathi, MBBS](#), Murugappan Ramanathan, MD, Andrew Lane, MD, Kofi Boahene, MD; Johns Hopkins University

P036: ENDOSCOPIC ENDONASAL TRANSCAVERNOUS SINUS STENT PLACEMENT FOR DRAINAGE OF A SYMPTOMATIC CP ANGLE EPIDERMOID CYST – [Gilbert Cadena, MD](#), Naveen Bhandarkar, MD, Frank P.K. Hsu, MD, PhD; UC Irvine

Poster Sessions

POSTERS WILL BE OPEN DURING ALL EXHIBIT HALL HOURS IN THE EXHIBIT ROOM.

P037: FRONTAL SINUSITIS AND NASOCUTANEOUS FISTULA AS COMPLICATION OF FRONTAL SINUS POSTERIOR TABLE FRACTURE

– Kristina Piastro, MD¹, Tiffany Chen, MD¹, Tyler J Kenning, MD², [Carlos D Pinheiro-Neto, MD, PhD¹](#); ¹Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, New York, ²Department of Neurosurgery, Albany Medical Center, Albany, New York.

P038: THE MODIFIED LOTHROP PROCEDURE (DRAF III FRONTAL SINUSOTOMY) IN THE MANAGEMENT OF FRONTAL SINUS DISEASE: A PATIENT OUTCOMES STUDY

– Stuart Curtis, MD¹, Anna Butrymowicz, MD¹, Tyler J Kenning, MD², [Carlos D Pinheiro-Neto, MD, PhD¹](#); ¹Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, New York, ²Department of Neurosurgery, Albany Medical Center, Albany, New York.

P039: EFFECT OF HEMODYNAMIC PARAMETERS ON RATE OF BLOOD LOSS IN ENDOSCOPIC ENDONASAL SURGERY

– Anna Butrymowicz, MD¹, Mark Chaskes², Robert D Engle, MD¹, [Carlos D Pinheiro-Neto, MD, PhD¹](#); ¹Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, New York., ²Medical Student, Albany Medical College, Albany, New York.

P041: EXTENDED ENDOSCOPIC-ASSISTED KAWASE VERSUS ENDOSCOPIC ENDONASAL ANTERIOR PETROSECTOMY: A CADAVERIC STUDY

– [Eleonora Marcati, MD¹](#), Norberto Andaluz, MD¹, Jeffrey T Keller, PhD¹, Lee A Zimmer, MD, PhD², James Leach, MD³, Mario Zuccarello, MD¹, Sebastien C Froelich, MD⁴; ¹Department of Neurosurgery, University of Cincinnati, Ohio, ²Department of Otolaryngology Head & Neck Surgery, Cincinnati, Ohio, ³Department of Radiology and Medical Imaging at Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio, ⁴Department of Neurosurgery, Lariboisière Hospital, Paris

P042: PURE ENDOSCOPIC APPROACHES TO THE MANDIBULAR NERVE: AN ANATOMIC STUDY COMPARING EXTRADURAL SUBTEMPORAL TO ENDONASAL TRANSPTERYGOID APPROACHES

– [Lior Gonen, MD¹](#), George Klironomos, PhD¹, Alireza Mansouri, MD¹, Eric Monteiro, MD², Allan Vescan, MD, MSc, FRCSC², Fred Gentili, MD¹, Gelareh Zadeh, PhD¹; ¹Division of Neurosurgery, Toronto Western Hospital, University of Toronto, Ontario, Canada, ²Department of Otolaryngology-Head and Neck Surgery, Mount Sinai Hospital, University of Toronto, Ontario, Canada

P043: THE JEFFERSON OPERATIVE ROOM SETUP FOR ENDOSCOPIC SKULL BASE SURGERY

– [Kurren S Gill, BA](#), Gurston Nyquist, MD, Marc Rosen, MD, James J Evans, MD, Mindy Rabinowitz, MD, David Hsu, MD; Thomas Jefferson University

P044: UNILATERAL EXPANDED ENDOSCOPIC ENDONASAL SURGERY FOR OLFACTORY SCHWANNOMA OF ANTERIOR CRANIAL BASE IN A PATIENT WITH HEREDITARY HEMORRHAGIC TELANGIECTASIA.

– Marcelo C Pereira, MD¹, Maria Peris Celda, MD, PhD², Tyler Kenning, MD², [Carlos D Pinheiro-Neto, MD, PhD¹](#); ¹Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, New York, ²Department of Neurosurgery, Albany Medical Center, Albany, New York.

P045: RESECTION AND RECONSTRUCTION OF NASAL TURBINATES IN ENDOSCOPIC ENDONASAL TRANSPTERYGOID APPROACH

– [Shuho Tanaka, MD¹](#), Hiroyoshi Akutsu, MD², Hidetaka Miyamoto, MD¹, Takuma Hara, MD², Tetsuya Yamamoto, MD², Akira Hara, MD¹; ¹Department of Otolaryngology, University of Tsukuba, ²Department of Neurosurgery, University of Tsukuba

P046: ENDOSCOPIC ENDONASAL APPROACH FOR RESECTION OF MIDDLE FOSSA ENCEPHALOCELE FOR TREATMENT OF REFRACTORY TEMPORAL LOBE EPILEPSY

– [Adeolu Olasunkanmi, MD](#), Tiffany Fisher, MD, Hae won Shin, Adam Zanation, MD, Deanna Sasaki-Adams; UNC Hospitals

P047: HYPOGLOSSAL NERVE SCHWANNOMA AT THE CAROTID BIFURCATION: AN UNLIKELY DISCOVERY

– Christopher D Frisch¹, [Mariel Qsetinsky¹](#), Jamie J Van Gompel², Jeffrey R Janus¹; ¹Mayo Clinic-Department of Otolaryngology Head & Neck Surgery, ²Mayo Clinic-Department of Neurologic Surgery

P048: SINONASAL NEOPLASMS INVOLVING THE CRANIAL BASE AND ORBIT: A CASE SERIES OF UNUSUAL PATHOLOGY AND REVIEW OF THE LITERATURE.

– [Stephen C Hernandez, MD](#), Neal Jackson, MD, Daniel W Nuss, MD, Rahul Mehta, MD; LSUHSC Department of Otolaryngology - Head and Neck Surgery

P049: TWO CASES OF SINONASAL TERATOCARCINOSARCOMA: CONFUNDERS, TREATMENT, AND REVIEW OF THE LITERATURE

– [Vidur Bhalla](#), Naweed Chowdhury, MD, Sameer Alvi, MD, Roukoz Chamoun, MD, Donald D Beahm; University of Kansas

P050: OBSTRUCTIVE SLEEP APNEA SYNDROME CAUSED BY PARAPHARYNGEAL SCHWANNOMA

– [Katelyn Stepan, MD](#), Alok Saini, MD, Jason Kass, MD, Alfred Iloretta, MD, Brett Miles, DDS, MD, FACS; Icahn School of Medicine at Mount Sinai

P051: UNUSUAL ORBITAL-CRANIAL METASTASIS OF A MALIGNANT SOLITARY FIBROUS TUMOR

– [Lorenzo Rinaldo, MD, PhD](#), Avital Perry, MD, Christopher S Graffeo, MD, Grant W Mallory, MD, Fredric B Meyer, MD; Mayo Clinic

P052: ENDOSCOPIC ENDONASAL RESECTION OF CAVERNOUS HEMANGIOMA OF THE PALATE

– Kristina Piastro, MD, Tiffany Chen, MD, [Carlos D Pinheiro-Neto, MD, PhD](#); Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, New York

P053: EVOLUTION OF 36 PATIENTS, 12 MONTHS AFTER POSTERIOR FOSSA SURGERY

– [Samuila Sanoussi, PhD](#), Ibrahim Assoumane, MD, Guemou Addo, MD; NIAMEY FACULTY OF HEALTH SCIENCES

Poster Sessions

POSTERS WILL BE OPEN DURING ALL EXHIBIT HALL HOURS IN THE EXHIBIT ROOM.

P054: GIANT SIZE INTRA-CRANIAL OSTEOMA OF ANTERIOR CRANIAL FOSSA SKULL BASE IN A 19 YEAR OLD – [Abdul H Naeem, BSc, Eng, MD¹](#), Abdurrahim Elashaal, MBBCh, MD²; ¹LHSC, ²Windsor Regional Hospital, Ouellette Campus, Windsor, Ontario, Canada

P055: RADIATION INDUCED SARCOMAS OF THE SKULL BASE: TWO UNIQUE CASES AND A LITERATURE REVIEW – [Jennifer C Fuller, MD](#), Matthew R Naunheim, MD, MBA, Matthew M Dedmon, MD, PhD, Stacey T Gray, MD, Derrick T Lin; Massachusetts Eye and Ear Infirmary

P056: PLASMACYTOMA OF THE SKULL BASE: A META-ANALYSIS – Shorook Na'ara, Moran Amit, [Ziv Gil](#), Salem Billan; RAMBAM HEALTH CARE CAMPUS

P058: OUTCOMES OF DIFFUSION TENSOR IMAGING TRACTOGRAPHY IN RESECTION FOR VESTIBULAR SCHWANNOMA FOR FACIAL NERVE PRESERVATION – [Panayiotis Pelargos](#), Nolan Ung, Monica Mathur, Brittany Voth, Nikh Bhatt, Natalie Barnette, Quinton Gopen, Isaac Yang; UCLA

P059: THE ROLE OF CISS SEQUENCE IN EVALUATING MRI NEGATIVE CUSHING'S DISEASE PATIENTS – [Min Lang, MS¹](#), Ghaith Habboub, MD¹, Doksu Moon, MD², Abin Bandyopadhyay, MD², Aaron C Sigler, DO¹, Hady Khalifa, BS¹, Josephine Volovetz, BA¹, Pablo F Recinos, MD¹; ¹Rose Ella Burhardt Brain Tumor and Neuro-Oncology Center, Neurological Institute, Cleveland Clinic, Cleveland, OH, ²Department of Diagnostic Radiology, Imaging Institute, Cleveland Clinic, Cleveland, OH

P060: OPTIC NERVE TRACTOGRAPHY PREDICTION OF VISUAL DEFICIT IN PITUITARY MACROADENOMA – [Karolyn H Au, MD, MSc](#), Gelareh Zadeh, MD, PhD; Toronto Western Hospital, University Health Network

P061: NEUROENDOVASCULAR MICRO-GUIDE WIRE RAMROD TECHNIQUE FOR SALVAGING OCCLUDED VENTRICULOSTOMY CATHETERS: TECHNICAL NOTE – [Bohdan W Chopko, PhD, MD](#); Stanford University

P062: THE UTILITY OF SENTINEL NODE BIOPSY IN SINONASAL MELANOMA: A CASE REPORT – [Michael Oldenburg, MD](#), Deanna Menapace, MD, Daniel Price, MD; Mayo Clinic

P063: AVAILABILITY OF A HEAD-MOUNTED DISPLAY SYSTEM IN ENDOSCOPIC SKULL BASE SURGERY – [Masayoshi Kobayashi, MD, PhD¹](#), Seiji Hatazaki, MD, PhD², Kazuhiko Takeuchi, MD, PhD¹; ¹Department of Otorhinolaryngology-Head and Neck Surgery, Mie University Graduate School of Medicine, ²Department of Neurosurgery, Mie University Graduate School of Medicine

P064: SURGICAL MANAGEMENT OF MENINGIOMAS 6 MONTHS FOLLOW UP OF 85 CASES IN A SUB-SAHARIAN COUNTRY – [Samuila Sanoussi, PhD](#), Aminath Kelani, MD, Guemou Addo, MD; NIAMEY FACULTY OF HEALTH SCIENCES

P065: MANAGEMENT OF FALCOTENTORIAL MENINGIOMAS – [Diego Mendez Rosito, MD](#); Centro Medico Nacional 20 de Noviembre, Mexico City

P067: FONTAL SINUS OSTEOMA: A HUGE CRANIOFACIAL TUMOR PREOPERATIVE PLANNING AND STRATEGY OF SURGICAL EXCISION AND RECONSTRUCTION - [Abdulrahman Albakr, Medical student](#), Sherif Elwatidy, Professor; King Saud University

P068: MANAGEMENT OF ORBITAL MENINGIOMAS AND ASSOCIATED PROPTOSIS – [Diego Mendez Rosito](#), Sara Plazola, MD; Centro Medico Nacional 20 de Noviembre, Mexico City

P069: ORBITOFRONTAL CHOLESTEROL GRANULOMA: CASE REPORTS AND A SYSTEMATIC REVIEW OF THE ENGLISH LITERATURE – [J.D. Hughes¹](#), J Jacob², J Garrity¹, D Salomao¹, M Link¹; ¹Mayo Clinic, ²Michigan Head and Spine

P070: LOCATION OF THE ORBITAL TUMOR WAS DEEPLY RELATED TO THE SYMPTOM. – [Yoshihiro Natori, MD, PhD](#); Iizuka Hospital

P071: A CASE REPORT OF PEDIATRIC GENICULATE NEURALGIA SUCCESSFULLY TREATED WITH SECTIONING OF THE NERVUS INTERMEDIUS AND MICROVASCULAR DECOMPRESSION OF THE CRANIAL NERVES IX AND X. – [Georgios A Zenonos, MD](#), Amir Faraji, MD, PhD, Nathan T Zwagerman, MD, Paul A Gardner, MD, Elizabeth C Tyler-Kabara, MD, PhD; University of Pittsburgh Department of Neurosurgery

P072: ENDOSCOPIC SKULL BASE APPROACH FOR PEDIATRIC FIBROUS DYSPLASIA: USEFULNESS OF THE SIMULTANEOUS COMBINATION OF CRANIOTOMY – [Shigetoshi Yano, MD¹](#), Naoki Shinojima, MD¹, Takuichiro Hide¹, Jun-ichi Kuratsu¹, Tetsuji Sanuki, MD², Yuki Kusaba, MD², Eiji Yumoto, MD²; ¹Department of Neurosurgery, Kumamoto University Graduate School, ²Department of Otolaryngology, head and neck surgery, Kumamoto University Graduate School

P073: OSTEOSARCOMA OF THE SKULL BASE IN THE PEDIATRIC POPULATION: A CASE REPORT AND LITERATURE REVIEW – [Samantha J Hauff, MD¹](#), Shelby Leuin, MD², Javan Nation, MD², Bobby S Korn, MD, PhD¹, Michael Levy, MD, PhD², Adam DeConde, MD¹; ¹University of California - San Diego, ²Rady Children's Hospital

P075: CLIVAL OSTEOMYELITIS WITH RETROPHARYNGEAL AND EPIDURAL ABSCESSSES IN A CHILD – [Meghan N Wilson, MD](#), Clarice S Clemmens, MD, Mark D Rizzi, MD; Children's Hospital of Philadelphia

Poster Sessions

POSTERS WILL BE OPEN DURING ALL EXHIBIT HALL HOURS IN THE EXHIBIT ROOM.

P076: MASTOID AIR CELL HYPERPLASIA ASSOCIATED WITH MIDDLE FOSSA ARACHNOID CYST: CASE ILLUSTRATION – [William Gump, MD](#); Kosair Children's Hospital

P077: OLFATORY OUTCOMES AFTER ENDOSCOPIC TRANSPHENOIDAL PITUITARY SURGERY WITH NASOSEPTAL OR NASOSEPTAL "RESCUE" FLAP: A SYSTEMATIC REVIEW – [Mingsi Li](#), Janalee Stokken, Brian D'Anza, Pablo Recinos, Troy Woodard, Raj Sindwani; Cleveland Clinic

P078: ELEVATED EXPRESSION OF PROGRAMMED DEATH LIGAND1 IN HUMAN PITUITARY TUMORS – Yu Mei, PhD¹, Wenya Linda Bi, MD, PhD¹, Ziming Du, PhD¹, Nathalie Agar, PhD¹, Gavin P Dunn, MD, PhD², Edward R Laws, Jr, MD¹, Sandro Santagata, MD, PhD¹, [Ian F Dunn, MD¹](#); ¹Brigham and Women's Hospital, ²Washington University St. Louis

P079: ACROMEGALY PRESENTING AS NON-SELLAR PITUITARY ADENOMA OF THE SKULL BASE: CASE REPORT AND LITERATURE REVIEW – [Matthew R Naunheim, MD, MBA](#), Matthew M Dedmon, MD, PhD, Jennifer C Fuller, MD, Derrick T Lin, MD, Stacey T Gray, MD; Massachusetts Eye and Ear Infirmary

P080: ECTOPIC FUNCTIONAL ADENOMA IN THE CAVERNOUS SINUS: A DIAGNOSTIC AND SURGICAL CHALLENGE – [Maria Koutourousiou, MD¹](#), Welby Winstead, MD²; ¹Department of Neurological Surgery, University of Louisville, Louisville, KY, USA, ²Department of Otolaryngology, University of Louisville, Louisville, KY, USA

P081: ENDOSCOPIC TRANSPHENOIDAL APPROACH FOR RECURRENT PITUITARY TUMOR. – [Bagathsingh Karuppanan, MD](#), Selvamuthukumaran Krishnamoorthy, MD, Nageswaran Dhanuskodi, MD; MMHRC

P082: CHARACTERIZING AND PREDICTING THE NELSON-SALASSA SYNDROME – [Christopher S Graffeo, MD](#), Avital Perry, MD, Lucas P Carlstrom, BS, Fredric B Meyer, MD, John D Atkinson, MD, William F Young, MD, Bruce P Pollock, MD, Jamie J Van Gompel, MD; Mayo Clinic

P083: CONCURRENT CLIVAL CHORDOMA AND SUPRASellar GERMINOMA IN A PEDIATRIC PATIENT: CASE REPORT AND REVIEW OF LITERATURE. – [Vidur Bhalla, MD](#), Hesham Soliman, MD, Kathy Newell, MD, Rakouz Chamoun, MD, Donald D Beahm, MD; University of Kansas

P084: PURE SINGLE NOSTRIL ENDOSCOPIC ENDONASAL TRANSPHENOIDAL HYPOPHISECTOMY FOR PITUITARY ADENOMA: CLINICAL SERIES OF 50 CASES – [rahadian Indarto Susilo, MD](#), Irwan Barlian immadoel Haq, MD, Joni Wahyuhadi, Md, PhD; Department of Neurosurgery Faculty of Medicine, Airlangga University, Dr Soetomo Hospital, Surabaya, Indonesia

P085: RECURRENCE AND SPHENOIDAL PROLAPSE OF A RATHKE CLEFT CYST FOLLOWING ENDOSCOPIC TRANSPHENOIDAL RESECTION PRESENTING WITH DELAYED SPONTANEOUS CSF LEAK: A CASE REPORT – Amjad N Anaizi, MD, [Joshua E Ryan, MD](#), Timothy DeKlotz, MD, Rocky Felbaum, MD; Georgetown University Hospital

P086: QUALITY OF LIFE IN PATIENTS WITH VESTIBULAR SCHWANNOMAS ACCORDING TO MANAGEMENT STRATEGY – [Gina Na, MD¹](#), Hyun Ji Kim, MD, PhD²; ¹Yonsei University College of Medicine, ²Department of ENT, Inha University College of Medicine

P087: PREFERENCES AND UTILITIES FOR HEALTH STATES AFTER TREATMENT OF OLFATORY GROOVE MENINGIOMA: ENDOSCOPIC VS OPEN. – Christopher Yao, Dr¹, Alyssa Kahane¹, David Goldstein, Dr², Gelareh Zadeh, Dr², [John De Almeida, Dr²](#); ¹University of Toronto, ²University Health Network

P088: AN AGGRESSIVE MULTIDISCIPLINARY APPROACH REDUCES MORTALITY IN RHINOCEREBRAL MUCORMYCOSIS – [Sheri K Palejwala, MD](#), Tirdad T Zangeneh, DO, Stephen A Goldstein, MD, G. Michael Lemole, Jr.; University of Arizona

P089: QUALITY OF LIFE AFTER STAGED MICROSURGERY AND MULTIMODALITY TREATMENT OF ACOUSTIC NEUROMAS – [Aaron M Metrailler, MD](#), Michael LaRouere, MD, Dennis Bojrab, MD, Seilesh Babu, MD; Michigan Ear Institute

P090: EFFECTS OF SMOKING ON QUALITY OF LIFE IN PATIENTS WITH MALIGNANCIES OF THE ANTERIOR CRANIAL BASE – Katayoon Sabetsarvestani, [Kyle K VanKoeveering, MD](#), Lawrence J Marentette, MD, Stephen E Sullivan, MD, Erin L McKean, MD; University of Michigan

P091: EXTENDED PERICRANIAL FLAP FOR ANTEROLATERAL SKULL BASE RECONSTRUCTION AFTER FRONTOTEMPORAL ORBITOZYGOMATIC TRANSCAVERNOUS APPROACHES: OPERATIVE TECHNIQUE AND NUANCES – [Michael A Cohen, MD](#), James K Liu, MD; Rutgers New Jersey Medical School

P092: ROLE OF LEUKOCYTE PLATELET RICH FIBRIN IN ENDOSCOPIC ENDONASAL SKULL BASE SURGERY DEFECT RECONSTRUCTION – [Liuba Soldatova¹](#), Raewyn Campbell, MD¹, Thomas Schmidt, MD², Jaime Pinto³, Daniel M Prevedello, MD¹, Ahmad Elkhatib, MD¹, Leo F Ditzel Filho, MD¹, Bradley A Otto, MD¹, Ricardo L Carrau, MD¹; ¹Wexner Medical Center at The Ohio State University, ²University of Concepción School of Medicine, Concepción, Chile, ³University of the Andes, Santiago, Chile.

P093: THE BIOMECHANIC QUALITY OF DURA MATER CORRELATING HISTOLOGY 3D-FINDINGS AND REVIEW OF MELVIN STUDY – [Jan Hemza, MD, PhD, PhD](#); Faculty Hospital at saint Ann, Dpt. Neurosurgery, Brno

P094: IS BONY RECONSTRUCTION FOR DEFECTS IN THE CRANIAL BASE NECESSARY AFTER RESECTION OF EXTENSIVE SKULL BASE TUMORS? – [Kiyoshi Saito, MD, PhD](#), Masazumi Fujii, MD, PhD, Taku Sato, MD, PhD, Kenichiro Iwami, MD, PhD, Yugo Kishida, MD, PhD, Kensho Iwatate, MD, Shinya Jinguji, MD, PhD, Keiko Oda, MD, Masahiro Ichikawa, MD, PhD, Jun Sakuma, MD, PhD; Fukushima Medical University

P095: THE ENDOSCOPIC BUCCAL FAT PAD FLAP FOR CLOSURE OF SKULL BASE DEFECTS: A REPORT OF THREE CASES – [Daniel W Flis, MD](#), Arnau Benet, MD, Ivan H El-Sayed, MD; University of California, San Francisco

P096: INTRAOPERATIVE AND POSTOPERATIVE CEREBROSPINAL FLUID LEAK RATES DURING EXTENDED TRANSSPENOIDAL SURGERY FOR SELLAR LESIONS: A META-ANALYSIS – Jazmin Cole, MD¹, [Daniel A Donoho, MD](#)², Ryan J Austerman², Gabriel Zada, MD²; ¹Baylor College of Medicine,²University of Southern California

P097: CRANIOFACIAL APPROACHES TO COMPLEX SKULL BASE TUMORS – [Diego Mendez Rosito](#), Rafael Ordoñez, Jorge Chaurand, Laura Pacheco; Centro Medico Nacional 20 de Noviembre

P098: CONTRALATERAL SEPTAL “TRAP DOOR” FLAP FOR UNILATERAL ANTERIOR SKULL BASE RECONSTRUCTION – [Chester F Griffiths, MD](#), Bjorn Lobo, MD, Garni Barkhoudarian, MD, Kian Karimi, MD, Daniel F Kelly, MD; Pacific Brain Tumor Center John Wayne Cancer Institute

P099: SURGICAL TECHNIQUE AND REPAIR OF LATERAL SPHENOID SINUS DEFECTS – [Omar Akbik, MD](#), Andrew Carlson, MD, Jeremy Lewis; University of New Mexico

P100: TOTAL NASAL RECONSTRUCTION USING A SPLIT CALVARIAL OSTEOPERICRANIAL FLAP – Robert D Engle, MD¹, Marcelo C Pereira, MD¹, Karthik Shastri, MD¹, Tyler J Kenning, MD², [Carlos D Pinheiro-Neto, MD, PhD](#)¹; ¹Division of Otolaryngology, Department of Surgery, Albany Medical Center, Albany, New York., ²Department of Neurosurgery, Albany Medical Center, Albany, New York.

P101: SINGLE STAGED RESECTIONS AND 3-D RECONSTRUCTIONS OF THE NASION/GLABELLA/ MEDIAL ORBITAL WALL/FRONTAL SINUS AND BONE : LONG-TERM OUTCOME AND REVIEW OF THE LITERATURE OREGON HEALTH AND SCIENCE UNIVERSITY; THE PERMANENTE MEDICAL GROUP – [Jeremy N Ciporen, MD](#)¹, Brandon Lucke-Wold², Gustavo Mendez¹, David J Cua, MD³, Anton Chen, MD³, Amit Banerjee, MD³, Paul T Akins, MD, PhD³, Ben Balough, MD, PhD³; ¹Oregon Health and Science University, ²West Virginia University, ³The Permanent Medical Group

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P103: BIOCELLULOSE AS DURAL SUBSTITUTE IN SKULL BASE ENDOSCOPIC SURGERY AND RECONSTRUCTION – [Danielle de Lara, MD](#), Leandro J Haas, MD, Celso I C Bernardes, MD, Vitor Hugo T Boer, MD, Luis R G O Mello, MD, PhD; Hospital Santa Isabel

P104: GIANT CRANIOFACIAL OSTEOMA: PREOPERATIVE PLANNING AND STRATEGY OF SURGICAL EXCISION AND RECONSTRUCTION - [Abdulrahman Albakr, Medical student](#), Sherif Elwatidy, Professor; King Saud University

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P111: USE OF SLEEVE NEURORRHAPHY AT THE BRAINSTEM FOR FACIAL NERVE RECONSTRUCTION – [Jason A Brant, MD](#)¹, Elizabeth A Nicolli, MD², John Lee, MD¹, Douglas C Bigelow, MD¹, Steven B Cannady, MD¹; ¹Hospital of the University of Pennsylvania, ²Medical College of South Carolina

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P113: BEYOND THE ENDONASAL ROUTE: COMBINED APPROACHES TO PITUITARY ADENOMAS – Jordina Rincon-Torroella, MD¹, Monirah Albathi, MBBS², Kofi D Boahene, MD², Alfredo Quinones-Hinojosa, MD¹; ¹Department of Neurosurgery, Johns Hopkins Hospital, ²Department of Otolaryngology - Head and Neck Surgery, Johns Hopkins Hospital

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P115: THE EPIDURAL PRETEMPORAL APPROACH; ANATOMY AND CASES IN AND OUT THE CAVERNOUS SINUS – Diego Mendez Rosito; Centro Médico Nacional 20 de Noviembre

P116: THE INFRADENTATE APPROACH USING A MINIMALLY INVASIVE PORT TECHNIQUE – Ali O Jamshidi, Farid M El Hefnawi, MD, Andre Beer Furlan, MD, Daniel Prevedello, MD; The Ohio State University Medical Center

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P119: INTRA-SPINOSUM MIDDLE MENINGEAL ARTERY LIGATION: A SIMPLE TECHNIQUE TO CONTROL BLEEDING IN THE MIDDLE FOSSA DURING THE ANTERIOR TRANSPETROSAL APPROACH – Shunsuke Shibao, MD¹, Hamid Borghei-Razavi², Kazunari Yoshida, MD, PhD¹; ¹Department of Neurosurgery, Keio University School of Medicine, ²Department of Neurosurgery, Clemens Hospital, Münster University

P120: A COMPARISON OF CEREBELLAR RETRACTION PRESSURES IN POSTERIOR FOSSA SURGERY: EXTENDED RETROSIGMOID VERSUS TRADITIONAL RETROSIGMOID APPROACH – Brandon D Liebelt, Meng Huang, MD, Gavin W Britz, MD; Houston Methodist Neurological Institute

P121: VESTIBULAR SCHWANNOMA AND PITUITARY ADENOMA IN THE SAME PATIENT: COINCIDENCE OR NOVEL CLINICAL ASSOCIATION? – Neil S Patel, MD¹, Jeffrey T Jacob, MD², Michael J Link, MD³, Colin L. W Driscoll, MD¹, Matthew L Carlson, MD¹; ¹Mayo Clinic - Department of Otorhinolaryngology, ²Michigan Head and Spine Institute, ³Mayo Clinic - Department of Neurological Surgery

P122: RECONSTRUCTION OF TEMPORAL BONE ENCEPHALOCELES AND ASSOCIATED CEREBROSPINAL FLUID LEAKS: OPERATIVE TECHNIQUE, NUANCES, AND RESULTS IN 17 PATIENTS – Ellina Hattar, BA, Yu-Lan Mary Ying, MD, Nicole Raia, ScD, CCCA, FAAA, Robert W Jyung, MD, James K Liu, MD; Rutgers University- New Jersey Medical School

P123: MALIGNANT PERIPHERAL NERVE SHEATH TUMORS OF THE 8TH CRANIAL NERVE ARISING WITHOUT PRIOR IRRADIATION – Matthew L Carlson, MD, Jeffrey T Jacob, MD, Elizabeth B Habermann, PhD, MPH, Amy E Wagie, MHA, Aditya Raghunathan, MD, Michael J Link, MD; Mayo Clinic

P124: PETROUS APEX ARACHNOID CYST FENESTRATION VIA AN ENDOSCOPIC TRANSSPHENOIDAL APPROACH: A CASE REPORT AND REVIEW OF THE LITERATURE – Cory D Bovenzi, BS¹, Enrique Perez, MD², Travis R Ladner, BA³, Raj Shrivastava, MD², Alfred M Illoreta, MD²; ¹Sidney Kimmel Medical College at Thomas Jefferson University, ²Icahn School of Medicine at Mount Sinai, ³Vanderbilt University School of Medicine

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P129: THE ASSOCIATION OF VESTIBULAR SCHWANNOMAS AND PITUITARY ADENOMAS: A POPULATION BASED STUDY – Matthew L Carlson, MD, Neil S Patel, MD, Elizabeth B Habermann, PhD, Amy E Wagie, MHA, Michael J Link, MD; Mayo Clinic

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P130: SURGICAL SIMULATION OF ENDOSCOPIC ENDONASAL ANTERIOR SKULL BASE SURGERY USING 3D HEAD MODEL AND CONE BEAM CT. – [Satoru Kodama, MD, PhD](#); Oita University

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P132: DEVELOPMENT OF A SKULL BASE CENTER IN A LOW-VOLUME ENVIRONMENT – [Bostjan Lanisnik, MD, PhD](#)¹, Janez Ravnik, MD, PhD¹, Carl H Snyderman, MD, MBA², Paul A Gardner, MD²; ¹University Medical Center Maribor, ²Center for Cranial Base Surgery, University of Pittsburgh Medical Center

P133: 3D SKULL RECONSTRUCTION WITH SELECTIVE LASER SINTERING FOR ENDOSCOPIC CRANIAL BASE SURGICAL SIMULATION AND TRAINING - [Tristan M Tham, MD](#), Lauren Rahman, MHA, Gil Lotzky, Todd Goldstein, BS, Lee Smith, MD, Peter D Costantino, MD, FACS; New York Head & Neck Institute

P134: DELAYED TENSION PNEUMOCEPHALUS SECONDARY TO A MISSILE INJURY REQUIRING SKULL BASE REPAIR. – Tandon Adesh, MD, Gillick John, Wang Arthur, [Amin Anubhav, MD](#); New York Medical College

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P136: OWN 23YY. EXPERIENCES WITH SKULL BASE TRAUMA – [Jan Hemza, MD, PhD, PhD](#); Faculty Hospital at saint Ann, Brno

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P138: CLINICAL FACTORS ASSOCIATED WITH VASOSPASM FOLLOWING PITUITARY APOPLEXY – [Peter Morone, MD](#)¹, Silky Chotai, MD¹, Michael Dewan, MD¹, Scott Zuckerman, MD¹, J Mocco, MD, MS²; ¹Vanderbilt University Department of Neurological Surgery, ²Mount Sinai Hospital Department of Neurological Surgery

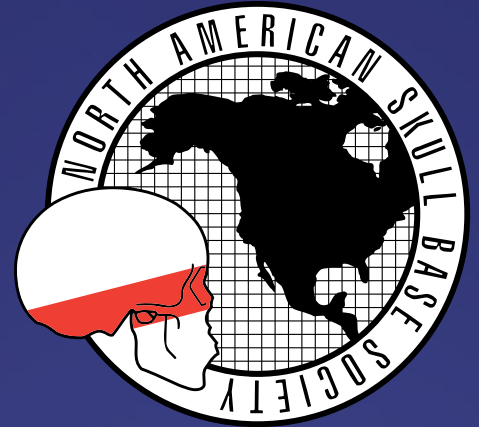
P139: RISK FACTORS FOR SHUNT DEPENDENCY AFTER ANEURYSMAL SUBARACHNOID HEMORRHAGE: A META-ANALYSIS INCLUDING 25 YEARS OF DATA – [Sam Safavi-Abbasi, MD, PhD](#)¹, Christopher D Wilson, BS², Robert F Spetzler, MD¹; ¹Barrow Neurological Institute, ²University of Oklahoma

P140: A CASE REPORT OF PITUITARY APOPLEXY WITH CONCOMITANT SUBARACHNOID HEMORRHAGE – [Amjad N Anaizi, MD](#), Daniel R Felbaum, MD, Joshua Ryan, MD, Walter C Jean, MD; MedStar Georgetown University Hospital

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