

TRIOLOGICAL SOCIETY

COMBINED SECTIONS MEETING



January 22-24, 2026
JW Marriott Grande Lakes Orlando
Orlando, Florida

www.triological.org



The Triological Society
UPHOLDING THE NOBLE LEGACY

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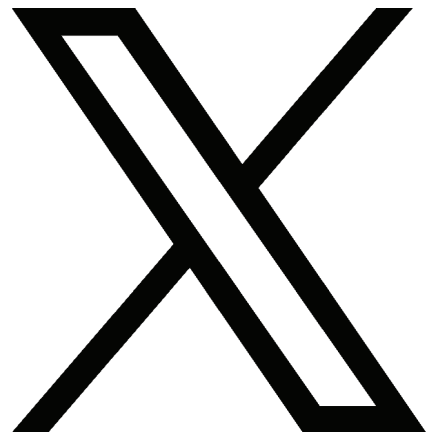
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The Triological Society



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#Trio2026

Message from the Vice Presidents

We look forward to our 2026 Combined Sections Meeting at the spectacular JW Marriott Grande Lakes Orlando. Orlando is the perfect location to bring your family to enjoy the hotel pools, spa, and golf. In addition, the destination offers countless parks and attractions for children and adults of any age.

Based on the positive feedback received last year, the educational content concludes on Saturday at 12:30 pm and we will once again offer the golf and spa events. Both events are complimentary to TRIO Fellows and offered at a significantly reduced rate for non-members. This revamped schedule affords you the opportunity to enjoy the remainder of the weekend golfing, exploring or spending some quality family-time enjoying Orlando. We have innovative panels scheduled on Saturday morning so plan your day accordingly to stay until the very end.

For those of you who like to golf, please join us for the 2nd Annual Harold C. Pillsbury Golf Tournament on Saturday afternoon. The shotgun start will be promptly at 1:00pm on Saturday, January 24, and will take place on the JW Grande Lakes Golf Course. Lunch is provided.

Back by very popular demand, the Spa event is the perfect end to the busy week. Relax and unwind while getting a chair massage, a hand massage and creating your own body scrub to take home with you.

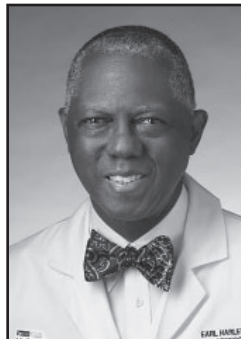
We, along with our fantastic Program Chair, Dr. Reena Dhanda Patil, and Program Committee, worked hard to craft a program with a lot to offer Otolaryngologists at any stage in their careers. We sincerely hope this year's Combined Sections Meeting exceeds your expectations. Enjoy your time here in Orlando!



Natasha Mirza, MD FACS
Eastern Section
Vice President



Craig A. Buchman, MD
Middle Section
Vice President



Earl H. Harley, MD FACS
Southern Section
Vice President



Dinesh K. Chhetri, MD
Western Section
Vice President

Thursday at a Glance

6:30 - 7:55	The Myles L. Pensak, MD FACS, Mentorship Speed Networking Breakfast - open to all attendees - Mediterranean 7-8
8:00 - 12:30	General Session - Coquina South
9:30 - 5:30	Exhibit Hall and Posters
9:55 - 10:25	Break - Visit Exhibits and Posters - Coquina North
12:30 - 1:20	Lunch - Visit Exhibits and Posters - Coquina North
12:30 - 1:20	Triological Thesis Seminar - Del Lago 1-2
1:20 - 3:05	Concurrent Session A: Head & Neck Papers and Panels - Mediterranean 7-8
1:20 - 3:05	Concurrent Session B: Otology/Neurotology Papers and Panels - Coquina South
3:05 - 3:35	Break with Exhibitors/View Posters - Coquina North
3:35 - 5:25	Concurrent Session C: Rhinology/Allergy Papers and Panels - Mediterranean 7-8
3:35 - 5:25	Concurrent Session D: Laryngology/Bronchoesophagology Papers and Panels - Coquina South
4:00 - 5:00	Skills Lab - Del Lago 3-4 (Open to all medical students)
5:30 - 7:00	Vice Presidents Welcome Reception - Porte Cochere
7:00	Neely Clinician-Scientist Mentorship Network Dinner (by invitation only) - Highball and Harvest, Ritz Carlton Hotel

Friday at a Glance

6:30 - 7:30	Symposium
6:30 - 7:30	Business Meetings (Triological Fellows Only) Southern Section - Del Lago 1-2 Western Section - Del Lago 3-4
7:00 - 7:30	Breakfast - Coquina North
7:00 - 5:00	Exhibit Hall and Posters
7:35 - 9:15	General Session
9:15 - 11:00	Concurrent Session E: Facial Plastic & Reconstructive Surgery Papers and Panels - Mediterranean 7-8

Friday at a Glance cont'd

9:15 - 11:00	Concurrent Session F: General & Sleep Medicine Papers and Panels - Coquina South
11:00 - 11:20	Break - Visit Exhibits and Posters - Coquina North
11:20 - 1:05	Concurrent Session G: Head & Neck Papers and Panels - Mediterranean 7-8
11:20 - 1:05	Concurrent Session H: Pediatric Otolaryngology - Coquina South
1:05 - 2:00	Lunch - Visit Exhibits and Posters - Coquina North
2:00 - 3:45	Concurrent Session I: Laryngology / Pediatric Otolaryngology - Mediterranean 7-8
2:00 - 3:45	Concurrent Session J: Otology Papers and Panels - Coquina South
3:45 - 4:10	Break - Visit Exhibits and Posters - Coquina North
4:10 - 5:00	PANEL: AI - The Good, The Bad, and the Seemingly Ugly
5:00 - 6:15	Resident Bowl - Mediterranean 7-8
6:15 - 7:45	Meet the Authors Poster Reception - Coquina North
7:45 - 8:45	The Maxine Bennett Reception (formerly the Women in OTO Reception) - Porte Cochere

Saturday at a Glance

6:45 - 7:45	Business Meetings (Triological Fellows Only) Eastern Section - Del Lago 1-2 Middle Section - Del Lago 3-4
7:30	Breakfast - Coquina North
7:30 - 10:30	Exhibit Hall and Posters
8:00 - 9:45	Concurrent Session K: Rhinology / Allergy Papers and Panels - Mediterranean 7-8
8:00 - 9:45	Concurrent Session L: General and Sleep Papers and Panels - Coquina South
9:45 - 10:15	Coffee Break - Visit Exhibits and Posters - Coquina North
10:15 - 12:30	General Session
12:30	Adjourn
1:00	Harold C. Pillsbury Golf Outing / Sip N Spa / Free Time

GENERAL INFORMATION

Mother's Room - Coquina Office

Please see someone at the registration desk for a key

Poster Viewing Hours

Thursday 9:30 am - 5:30 pm
Friday 7:00 am - 5:00 pm
Saturday 7:30 am - 10:30 am

Poster Help Desk

Wednesday 5:00 pm - 8:00 pm
Thursday 6:30 am - 5:40 pm
Friday 6:30 am - 4:00 pm
Saturday 6:30 am - 12:00 pm

Registration Hours - Mediterranean Foyer

Wednesday 3:00 pm - 8:00 pm
Thursday 6:30 am - 6:00 pm
Friday 6:30 am - 5:30 pm
Saturday 6:30 am - 10:00 am

Speaker Ready Room Hours

Wednesday 5:00 pm - 8:00 pm
Thursday 7:00 am - 6:00 pm
Friday 7:00 am - 5:00 pm
Saturday 7:00 am - 10:00 am

Exhibit Hall Hours - Coquina North

Wednesday SET UP
Thursday 9:30 am - 5:30 pm
Friday 7:00 am - 5:00 pm, 6:15 pm - 7:45 pm (Open during Poster Reception)
Saturday 7:30 am - 10:30 am

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION**Accreditation**

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of American College of Surgeons and Triological 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 **17.50 AMA PRA Category 1 Credits™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.



QR Code for Program Evaluation

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January 22-24 • JW Marriott Grande Lakes Orlando • Orlando, Florida

About the Triological Society

The American Laryngological, Rhinological and Otological Society, Inc., aka The Triological Society, was founded in 1895 in New York, NY. Since its founding, the Triological Society has attracted the best and brightest in academic and clinical otolaryngology. Membership in the Triological Society brings the distinction of being elected to the most prestigious society in otolaryngology. Active Fellowship is achieved by presenting a thesis in the field of otolaryngology considered acceptable to a panel of peers. For those entering the field of otolaryngology, the Society provides role models. For those who are committed to research and related scholarly activity, the Society offers fellowship with like-minded peers who share common values, interests, and concerns.

The Society disseminates scientific information by presenting the latest basic science and clinical information at scientific meetings and through publication of its scientific journals, The Laryngoscope and Laryngoscope Investigative Otolaryngology. The Society promotes research into the causes of and treatments for otolaryngic diseases by attracting promising physicians to scholarly otolaryngology research and supporting their development, providing financial support for the research efforts of young scientists, and promoting the highest standards in the field of otolaryngology-head and neck surgery.

Mission Statement

The mission of the Triological Society is to assist physicians and other health care professionals in maintaining and enhancing their knowledge of and skills in otolaryngology-head and neck surgery in pursuit of improved patient care.

Goals

- To continue the noble legacy of the Triological Society, which is to attract, develop and mentor the best otolaryngologists to become scholars and leaders.
- To encourage, support, and disseminate through meetings, print and electronic mediums the latest basic and clinical research findings and reports on evidence-based medicine pertaining to the diagnosis, treatment and prevention of the full spectrum of disorders of the head and neck and related structures.
- To seek out and encourage scientific and technical advances in otolaryngology-head and neck surgery.
- To provide a forum through meetings, print and electronic mediums for the international exchange of ideas and knowledge in otolaryngology-head and neck surgery and related fields of medicine and science.
- To provide for physician professional development through support of teaching and peer reviewed research.
- To encourage the highest ethical and professional standards in the delivery of patient care by otolaryngologist-head and neck surgeons.
- To promote academic excellence by requiring peer recommendations and an acceptable mentored thesis for admission to membership.
- To ensure that all educational activities comply with ACCME directives, and develop vehicles for otolaryngologist-head and neck surgeons to meet their Maintenance of Certification requirements.
- To enhance fellowship amongst members by creating social forums for interface and conversation.
- To maintain The Laryngoscope and Laryngoscope Investigative Otolaryngology as primary journals at the forefront of excellence as a resource and venue for scientific advancement of the profession.
- To advance the Society's standing outside the field of otolaryngology-head and neck surgery and promote across all types of practice environments.

- To facilitate the above goals, the Society sponsors educational meetings. The Society's journals, The Laryngoscope and Laryngoscope Investigative Otolaryngology serve as a means of disseminating the latest basic and clinical research results. The Society encourages research in otolaryngology-head and neck surgery by providing research grants and awards on a competitive basis.

Program Objectives

This activity is designed for otolaryngologists-head and neck surgeons and other health professionals. At the conclusion of this activity, the learner should be able to:

- Identify the causes and explain appropriate interventions of various common and uncommon disorders of the ear, nose, throat, head and neck.
- Apply knowledge of new technologies to enhance patient and practice outcomes in otolaryngology.
- Implement evidence-based tools to evaluate children and older adults with communication disorders.
- Manage multidisciplinary teams with appropriate expectations of each team member so that care is streamlined, efficient, and patient and family-centered.
- Assess their own level of competence in various aspects of otolaryngology clinical practice, education, research, and practice management to identify knowledge gaps and address them effectively.

Exhibits

Exhibitors will include representatives of pharmaceutical companies, instrument companies, diagnostic equipment companies, and others. We encourage attendees to visit the exhibit hall for information that may assist in their pursuit of improved patient care. Exhibitor arrangements are in compliance with the Accreditation Council for Continuing Medical Education (ACCME) Standards for Commercial Support.

Information presented by exhibitors and oral and poster presenters does not represent an endorsement by the Triological Society.

Disclosure Information

In accordance with the ACCME Accreditation Criteria, the American College of Surgeons must ensure that anyone in a position to control the content of the educational activity (planners and speakers/authors/discussants/moderators) has disclosed all financial relationships with any ineligible company held in the last 24 months. Please note that first authors were required to collect and submit disclosure information on behalf all other authors/contributors, if applicable.

Please see the insert to this program for the complete disclosure list.

Program Evaluation and CME Certificates

Participant comments on program evaluation forms assist Program Advisory Committees in determining the direction of future educational activities. We appreciate your input and request that you complete a program evaluation in exchange for a CME certificate of attendance. Records are maintained in the Administrative Office of the Society and maintained by the American College of Surgeons for Fellows of the College.

Award of CME credits by ACS is based on compliance of the program with the ACCME accreditation requirements and does not imply endorsement by ACS of the content, the faculty, or the sponsor of the program.

Successful completion of this CME activity, which includes participation in the evaluation component, enables the learner to earn credit toward the CME of the American Board of Surgery's Continuous Certification program.

Program Planning and Advisory Committee

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Guests of Honor

Eastern Section

Bert W. O'Malley Jr., MD FACS

Southern Section

Kenneth M. Grundfast, MD FACS

Western Section

Andrew Allen Erman, MA/CCC-SLP

Middle Section

Jacques A. Herzog, MD

Citation Awardees

Eastern Section

Sujana S. Chandrasekhar, MD FACS

Richard L. Doty, PhD

Southern Section

Charles A. Hughes, MD MBA MPH FACS

Lamont R. Jones, MD MBA FACS

Western Section

Jennifer L. Long, MD PhD

Maie A. St. John, MD PhD

Middle Section

Oliver F. Adunka, MD

Amit Walia, MD MSCI

Middle Section George Adams, MD Young Faculty Award

Joseph Zenga, MD

13th Annual Patrick E. Brookhouser, MD Award of Excellence

Mark S. Persky, MD FACS

Binderup Prize

Daniel G. Deschler, MD FACS

Guests of Honor

Honored by Eastern Section • Bert W. O'Malley Jr., MD FACS



As President of the University of Maryland Medical Center (UMMC), Dr. O'Malley oversees the Downtown and Midtown campuses as well as multiple community locations, with a focus on quality, education, community engagement, and academic excellence. He also serves as Executive Vice President of the University of Maryland Medical System's Academic Health Division, where he is responsible for advancing academic partnerships across the system.

In addition to these leadership roles, Dr. O'Malley is an internationally renowned surgeon and innovator in skull base surgery, robotic surgery, and head and neck cancer, with prior appointments at the University of Pennsylvania and Johns Hopkins University. He is a Past President of the American Head and Neck Society, a Professor of Otorhinolaryngology–Head & Neck Surgery within the University of Maryland School of Medicine, and a practicing head and neck cancer surgeon.

Dr. O'Malley co-invented and developed a series of novel robotic surgical procedures called transoral robotic surgery (TORS). He co-founded the first human robotics head and neck surgery program and skull base surgery program in the world and was co-principal investigator (CoPI) of the first Institutional Review Board-approved clinical trial for robotic surgery in his specialty. He also served as the CoPI of clinical trials that earned US Food and Drug Administration approval for TORS procedures in 2009 and 2014.

Honored by Middle Section • Jacques A. Herzog, MD



Jacques A. Herzog, MD, completed his BA/MD degree through the University of Missouri–Kansas City's accelerated six-year program. He subsequently completed residency training in Otolaryngology–Head and Neck Surgery at Baylor College of Medicine, followed by fellowship training in Otology/Neurotology under Professor Ugo Fisch at the University of Zurich.

Early in his career, Dr. Herzog contributed to the pioneering development of multichannel cochlear implantation in the United States, establishing a lifelong commitment to advancing hearing restoration. He was later recruited to Saint Louis University, where he served as Chief of the Division of Otology/Neurotology. In 1993, he founded the Center for Hearing and Balance Disorders, a program that achieved national recognition for its leadership in cochlear implantation and comprehensive otologic and neurotologic care.

Dr. Herzog's research contributions include seminal work examining cognitive outcomes in older adults undergoing cochlear implantation. This work culminated in his 2023 Triological Society thesis, which at the time represented the largest single-center study evaluating long-term cognitive function in this population.

In 2017, the Center for Hearing and Balance Disorders integrated with Washington University School of Medicine, where Dr. Herzog currently serves as Professor and Chief of the Division of Otology/Neurotology. He leads one of the largest cochlear implant programs in the United States and also serves as Assistant Dean for Community-Based Medical Education.

Dr. Herzog is a Fellow of the American Academy of Otolaryngology–Head and Neck Surgery, the American Neurotology Society, the Triological Society, and the American Otologic Society.

Honored by Southern Section • Kenneth M. Grundfast, MD FACS



After completing a residency in Otolaryngology-Head and Neck Surgery in 1977 at the Boston University-Tufts University Combined Otolaryngology Residency Program, Kenneth Grundfast went to the Children's Hospital of Pittsburgh for a one-year fellowship in pediatric otolaryngology. Subsequently, he joined the faculty of the University of Pittsburgh School of Medicine staying there until December 1979 when he became Chair, Department of Otolaryngology, at the Children's National Medical Center. In 1989 he took a one-year sabbatical to study the genetics of deafness at the National Institute on Deafness and other Communication Disorders. In 1999 he moved to Boston to become chair of the Department of Otolaryngology-Head and Neck Surgery at the Boston University School of Medicine, a position that he held until 2017. He has published extensively in the medical literature, held many leadership positions in professional organizations, and he served as an assistant Dean at the Boston University School of Medicine. Ken is keenly aware that whatever he has achieved in his career would not have happened without the support of his mentor, Dr. Loring Pratt.

Honored by Western Section • Andrew Allen Erman, MA/CCC-SLP



Andrew Erman is the former director of Speech Pathology Services at UCLA Health System. He is now retired. His clinical focus was the assessment and treatment of head and neck cancer patients with swallowing and communication disorders. Mr. Erman worked closely with Dr. Chhetri of UCLA Head and Neck surgery to improve patient care, including in-the-chair tracheoesophageal punctures and patient candidacy criteria for partial epiglottectomy to improve swallowing function. Dr. Chhetri and Mr. Erman collaborated on lectures, journal articles and textbook chapters.

Citation Awardees

Eastern Section • Sujana S. Chandrasekhar, MD FACS



Dr. Sujana Chandrasekhar used to be Doogie Howser. She went to a six year combined BS-MD program at the City College of New York and Mount Sinai School of Medicine, and she graduated at the age of 22. She did her residency at NYU, then married Kris Ramanathan and went out west to do a fellowship in Otology and Neurotology at the House Ear Institute in Los Angeles. Her first academic job was at New Jersey Medical School, where she did the research that led to her Triological Society thesis for which she won second prize for research, and had her three sons. Her second academic job was at Mount Sinai School of Medicine in New York. In 2003 she presented her Triological Society thesis on the Role of Intranasal Surfactant on Eustachian Tube Dysfunction and Otitis Media and sang with a country music star at the Trio banquet in Nashville! In October 2004, Dr. Chandrasekhar began solo private practice in Manhattan. Her daughter was born 4 months later. Still in private practice, she became the Director of Neurotology at the Bronx VA Hospital in 2008. She was Chair of the Board of Governors of the American Academy of Otolaryngology- Head and Neck

Surgery and then was its President from 2015 to 2016. She joined ENT and Allergy Associates, LLP in 2018 and practices in New York and New Jersey. She is Clinical Professor at Zucker SOM (Northwell/Hofstra). She was President of the American Otological Society 2023-2024. She was Vice President of the Eastern Section of the Triological Society and served as the January Combined Sections Meeting Program Chair for three years, during which time Speed Mentoring was introduced. She has led Clinical Practice Guidelines on Sudden Hearing Loss, Tinnitus, Sinusitis and Improving Voice Outcomes after Thyroidectomy. She has been Consulting Editor of the Otolaryngologic Clinics of North America since 2017, strengthening their academic caliber, introducing a free podcast per issue (by far the most listened to at Elsevier), leveling the gender makeup and tackling URiM representation, in terms of Guest Editors and authors. She's not afraid of speaking up for equity in Society representation, nor of sharing info and mentoring on Social Media. Her father and she wrote a beautiful textbook, Temporal Bone Histology and Radiology Atlas, based on their many years of instructional courses. Her accolades include being named a Living Legend in the Hall of Distinction at AAO-HNS and receiving the Dr Mary Edwards Walker Prize for Inspiring Women in Surgery from the American College of Surgeons and the Luminary Award from AAPI New Jersey. She has developed her Thesis work into a pharma startup company, KivviMed, Inc., of which she is CEO. (Look for her on Meet the Drapers Season 9 on drapertv.com this fall!)

Eastern Section • Richard L. Doty, PhD



Richard L. Doty, PhD, FAAN, is a Professor in the Department of Otorhinolaryngology: Head and Neck Surgery, Perelman School of Medicine, University of Pennsylvania, and a visiting Professor at the Johns Hopkins Medical School. He headed Penn's Smell and Taste Center for nearly 50 years and founded Sensonics International, the world's leading manufacturer of chemosensory tests, in 1984. He is an author or coauthor of over 500 professional publications (including 12 books and contributions to such publications as Science, Nature, Lancet, and the Encyclopedia Britannica). Among his books are The Great Pheromone Myth (Johns Hopkins University Press, 2010), Neurology of Olfaction (Cambridge University Press, 2009), and Smell and Taste Disorders (Cambridge University Press, 2018). He is editor of the Handbook of Olfaction and Gustation (John Wiley, 3rd edition, 2015), a 2000+ page tome considered to be the Bible of the chemical senses field. In 1984, he invented the University of Pennsylvania Smell Identification Test (UPSIT®), a standardized olfactory test that has been translated into over 60 languages and heralded as the olfactory equivalent of the eye chart. He recently developed the first waterless empirical taste test (WETT®) which, like the UPSIT®, can be self-administered and sent to subjects through the mail. Among his numerous awards are the James A. Shannon Award from the National Institutes of Health, the Olfactory Research Fund's Scientific Sense of Smell Award, the William Osler Patient-Oriented Research Award from the University of Pennsylvania, the Society of Cosmetic Chemist's Service Award, the Association for Chemoreception Science's Max Mozell Award for Outstanding Achievement in the Chemical Senses, and the 2024 ScholarGPS's "Highly Ranked Scholar" award (Olfaction #1, Otolaryngology #4). Dr. Doty received the B.S. degree from Colorado State University (1966), the M.A. degree from California State University, San Jose, in conjunction with the National Aeronautics and Space Administration (NASA), Moffett Field, CA (1968), and the Ph.D. degree from Michigan State University, East Lansing (1971). He received post-doctoral training at the University of California, Berkeley, in behavioral endocrinology (1971-1973).

Middle Section • Oliver F. Adunka, MD



Dr. Oliver F. Adunka is an academic otologist, neurotologist, and lateral skull base surgeon at The Ohio State University, where he serves as Vice Chair for Clinical Operations and Director of the Division of Otology, Neurotology, and Cranial Base Surgery. He is a tenured Professor and the William H. Saunders, MD Endowed Professor, and also directs Pediatric Otology at Nationwide Children's Hospital. His career integrates clinical excellence, translational research, mentorship, and leadership across both adult and pediatric settings.

A native of Vienna, Austria, Dr. Adunka earned his medical degree from the University of Vienna and completed otolaryngology residency training in Vienna and at the Johann Wolfgang Goethe University in Frankfurt am Main, Germany. His doctoral and habilitation research focused on mechanisms of cochlear trauma during electrode insertion. He subsequently completed subspecialty fellowship training in otology, neurotology, and lateral skull base surgery at the University of North Carolina at Chapel Hill, where he later joined the faculty as a clinician-

scientist before being recruited to Ohio State in 2014.

Dr. Adunka's clinical practice spans the breadth of adult and pediatric otology, neurotology, and complex skull base surgery, with particular expertise in hearing restoration through cochlear implantation. A central theme of his academic work has been advancing hearing preservation and cochlear physiology. His early research helped shape modern atraumatic cochlear implant techniques and electrode designs, and his leadership in the first U.S. multicenter electric-acoustic stimulation trial contributed to FDA approval of hybrid hearing technology. He subsequently developed intraoperative electrocochleography (ECoChG) as a real-time physiologic tool to guide cochlear implantation—an innovation that advanced from concept to FDA-approved clinical technology. He currently serves as Principal Investigator of a multi-center NIH U01 trial evaluating the clinical utility of residual hearing in the cochlear implant ear.

Middle Section • Amit Walia, MD MSCI



Amit Walia, MD, MSCI is a Neurotology & Skull Base Surgery Fellow and Instructor in the Department of Otolaryngology-Head and Neck Surgery at Washington University in St. Louis. He completed his T32-supported residency training at Washington University, where he worked closely under the mentorship of Craig Buchman, MD. His work with Dr. Buchman has focused on cochlear electrophysiology to better understand cochlear mechanics and improve outcomes for cochlear implant recipients. This body of work has led to multiple patents, foundational publications, and competitively funded research grants, and has helped establish an important and growing area of investigation in the field.

Southern Section • Charles A. Hughes, MD MBA MPH FACS



I was born and raised on a rural farm in North Carolina. My grandparents had four children, whom they raised in impoverished circumstances on that farm before me. My father joined the US Navy at 18 years of age because they could not afford college. He served four years in Alaska and Okinawa and achieved the rank of electrician's mate. Returning to the farm, he was eventually able to attend college, the first in our family, and became an electrical engineer. I was fortunate to attend UNC - Chapel Hill for undergraduate studies and fortunate to be the first in my family to be accepted into medical school at the ECU Brody School of Medicine in Greenville, NC.

I completed my internship in General Surgery at Wake Forest University and was again fortunate to be contacted by Dr. Charlie Cummings to work in his department at Johns Hopkins University the following year. I joined Dr. Roy Sessions' Department at Georgetown University in 1993, where I met Dr. Earl Harley. I joined Lauren Holinger for a 2-year fellowship at Children's Memorial in Chicago in 1997. Also at this time, I joined the US Navy Reserves. After my fellowship, I was offered the opportunity to be activated and trained as a US Navy Flight Surgeon at the Naval Aerospace and Operational Medical Institute in Pensacola, FL. After Flight Training, I served as a Principal Investigator - Research Scientist for the Naval Aerospace Medical Research Laboratory (NAMRL), Spatial Orientation Systems in Pensacola, FL to research vestibular adaptation for pilots. We successfully obtained over \$6,000,000 in grant funding from NIH, NASA and DOD sources and built the Vestibular Test Battery.

During my time in Pensacola, I also served as a pediatric otolaryngologist for Nemours Children's Health. In 2010, my research laboratory was moved from Pensacola, and I accepted a position at the Medical College of Georgia. While there, I completed an MBA and an MPH. My MPH thesis concentrated on workforce issues and models of delivery of value-based healthcare to populations in both urban and rural environments. This work continued with the American Academy of Otolaryngology and resulted in my Triologic thesis and Laryngoscope publication Otolaryngology Workforce Analysis (<https://doi.org/10.1002/lary.26238>). I also completed Strategic Studies at the Naval War College, served as the US Navy Reserve Otolaryngology Specialty Leader and Consultant to the Surgeon General, and served on advisory boards for Tricare and the Defense Health Board. Most recently, I served as the US 7th Fleet representative and consultant to the COVID Task Force, Kadena AFB, and Task Force Safeguard U.S. Naval Hospital Okinawa.

In 2015, I was brought on as the first surgeon for Texas Children's Hospital - The Woodlands to assist in building a pediatric otolaryngology division, and in 2018, I was recruited to Providence Health to help establish a children's hospital. In 2021, I returned to Texas as a Professor at UTMB in Galveston and will continue this journey in 2026 at Orlando Health to establish a Pediatric Otolaryngology division for the Arnold Palmer Hospital for Children.

Southern Section • Lamont R. Jones, MD MBA FACS



Dr. Jones is Associate Chief Medical Officer of the Henry Ford Medical Group (HFMG). Dr. Jones, professor of otolaryngology at Michigan State University and Wayne State University, has an established record as a facial plastic and reconstructive surgeon. Dr. Jones completed medical school and otolaryngology, head and neck surgery, training at the University of Michigan, a facial plastic and craniofacial reconstructive surgery fellowship at SUNY UpState Medical University, and an executive MBA from Michigan State University Broad School of Business. He is an internationally respected surgeon scientist who studies the treatment and pathogenesis of keloid disease. His other clinical interests include craniofacial reconstruction and facial cosmetics and trauma. Dr. Jones has written numerous publications and book chapters and has obtained more than \$1.5 million in National Institute of Health and foundational funding to investigate keloid disease clinical biomarkers and therapeutic targets. He is also a translational research advisor specializing in preclinical and clinical trials for keloid drug discovery. Dr. Jones has also lectured in countries such as China, Australia, Morocco, Italy,

Taiwan, and France. He has extensive board experience and volunteers his time locally and on international medical mission trips.

Western Section • Jennifer L. Long, MD PhD



Dr. Jennifer Long is a laryngologist and Professor at the University of California-Los Angeles. She also serves as the Vice Chair of Research for the Department of Head and Neck Surgery at UCLA, the founding director of UCLA's R25 Mentored Research Pathway for Residents and Medical Students in Otolaryngology, and as a physician and principal investigator at the Greater Los Angeles VA Healthcare System. She obtained her MD and PhD degrees at the University of Minnesota, studying Chemical Engineering as part of the Medical Scientist Training Program. She then completed residency in Head and Neck Surgery at UCLA, followed by UCLA's fellowship in Laryngology and Voice Disorders.

Dr. Long's clinical interests include all facets of voice, airway, and swallowing disorders. Her translational research lab studies regenerative medicine approaches to treat these disorders, and has been funded by the National Institutes of Health, the Department of Veterans Affairs, American Laryngological Association, AAO-HNSF, and the Broad Stem Cell Research Center. Research

mentoring has been an active pursuit, locally at UCLA and nationally through the Triological Society's Thesis Committee, the Neely Mentoring Network, the ALA's Research Advancement Committee, and the Laryngology Research Collaborative.

Western Section • Maie A. St. John, MD PhD



A highly renowned surgeon, scientist and educator, Dr. St. John is Andelot Professor and Director of the Department of Otolaryngology - Head and Neck Surgery, Otolaryngologist-in-Chief, Johns Hopkins Medicine. She is the immediate past Professor and Chair of the Department of Head and Neck Surgery and Professor of Bioengineering at UCLA where she held the Thomas C. Calcaterra, M.D., Chair in Head and Neck Surgery and Co-Director of the UCLA Head and Neck Cancer Program. Under her leadership the Department of Head & Neck Surgery at UCLA rose to #1 nationally by USNWR. Dr. St. John's laboratory studies the mechanisms of tumor progression and metastasis, incorporating the results of their laboratory-based research into the development of novel therapeutics. She is an outstanding educator who has provided mentorship to numerous trainees, and serves as a member of several prestigious organizations including the Executive Council of the AHNS, Triological Society, ACS Board of Governors Advisory Council, and the American Laryngological Association. She is a senior examiner for the ABOto and a reviewer for the AAO-HNS CORE grants, and NIH/NIDCR, NCI and NIBIB study sections. She has been the recipient of multiple awards for teaching and research.

Dr. St. John received her B.S. from Stanford and M.D. and Ph.D. degrees from Yale. She completed residency and postdoctoral training at UCLA. Dr. St. John's clinical expertise is in intraoperative tumor margin delineation in the resection of head and neck cancers to allow for precision surgery. Her efforts have helped in the development of strong interdepartmental research programs in Head & Neck Surgery and Bioengineering. This work has led to clinical trials and patent applications, and has been consistently funded by the NIH, charitable foundations, and industry.

In addition to maintaining a busy surgical practice, Dr. St. John is active in clinical research and is closely involved in training young physician-scientists. She is a prolific author and a sought-after lecturer internationally.

Middle Section George Adams, MD Young Faculty Award

Joseph Zenga, MD



Dr. Zenga obtained his undergraduate degree at Cornell University and attended Washington University in Saint Louis where he earned an MD degree and completed an Otolaryngology-Head and Neck Surgery residency. He subsequently completed a fellowship in Head and Neck Surgical Oncology, Skullbase Surgery, and Microvascular Reconstruction at Massachusetts Eye and Ear Infirmary/Harvard Medical School. His fellowship training focused heavily on both complex free tissue reconstruction and minimally invasive surgery with the use of surgical robots. His research interests include basic and translational immunotherapy in head and neck cancer. In particular, his laboratory focuses on identification and therapeutic use of tumor antigen-specific T cells. This includes multiple innovative single-cell techniques incorporating individual tumor cell-T cell co-culture and single-cell RNA and T cell receptor sequencing. In addition to translational immuno-oncology, he also co-leads multiple novel clinical trials focused on using radiotherapy to improve the immune response in head and neck cancer.

13th Annual Patrick E. Brookhouser, MD Award of Excellence

Mark S. Persky, MD FACS



Mark S. Persky, MD is a recognized expert in head and neck surgery with special interest and expertise in the treatment of tumors of the head, neck, skull base and thyroid gland, as well as congenital vascular malformations and hemangiomas. He has published and lectured extensively on these topics. He was appointed Professor Emeritus of Otolaryngology - Head and Neck Surgery at the NYU Grossman School of Medicine in 2023.

Dr. Persky received his Bachelor's degree from New York University and his medical degree from the State University of New York Upstate Medical Center. He completed his otolaryngology residency at NYU Medical Center and a Head and Neck Surgical Fellowship at Beth Israel Medical Center. He then began his academic practice at the Department of Otolaryngology at New York University School of Medicine where he was Vice Chairman from 1994-1998. From 2005 through 2014, he was Chairman of the Department of Otolaryngology - Head and Neck Surgery at Beth Israel Medical Center, Otolaryngologist-in-Chief of the

Continuum Otolaryngology - Head and Neck Surgery Service Line and was a Professor of Otorhinolaryngology - Head and Neck Surgery at Albert Einstein College of Medicine. He was Associate Director of the Continuum Cancer Center and was Co-Director of the Institute for Head and Neck Cancer at Beth Israel Medical Center. He returned to NYU Langone Medical Center in 2013 and was appointed Director of the Head and Neck Center until he retired from clinical practice in 2023.

He is a member of the American Laryngological Association, the American Head and Neck Society, the American Bronchoesophagological Society and the North American Skull Base Society. He is Past President of the American Laryngological, Rhinological and Otological Society (a.k.a. Triological Society), the New York Head and Neck Society and the New York Laryngological Society.

Binderup Prize

Daniel G. Deschler, MD FACS



Daniel G. Deschler, MD, FACS is the Vice-Chair for Academic Affairs for the Department of Otolaryngology-Head and Neck Surgery at the Massachusetts Eye and Ear Infirmary. For the previous decade, he served as the Director of the Division of Head and Neck Surgery in the Department of Otolaryngology-Head and Neck Surgery at the Massachusetts Eye and Ear Infirmary (MEEI), as well as Director of Head and Neck Oncologic Surgery at the Massachusetts General Hospital. He currently co-directs the Michael Dingman Fellowship in Head and Neck/Microvascular surgery. He is the recent President of the New England Otolaryngology Society. Dr. Deschler received his BA at Creighton University and he received an Honors degree in Medicine from Harvard Medical School. After concluding his Otolaryngology-Head and Neck Surgery residency at the University of California, San Francisco, he then completed an advanced fellowship in head and neck surgical oncology and microvascular reconstruction in with Richard Hayden, MD in 1996. Dr. Deschler joined the Staff of the Massachusetts Eye and Ear Infirmary in 2000 and is currently a Professor of Otolaryngology-Head

and Neck Surgery at Harvard Medical School and he is honored to be the Inaugural Dr. Eugene N. and Barbara L. Myers Chair in Head and Neck Surgery at the Mass Eye and Ear. He and his wife, Eileen Reynolds, MD are Faculty Deans for Leverett House at Harvard University.

He has authored over 250 peer-reviewed publications, as well as numerous books, book chapters and

education reviews. He serves on the editorial boards of the Annals of Otology, Rhinology and Laryngology, Head & Neck, Laryngoscope and UpToDate. He has served as the Otolaryngology Section Editor for UpToDate since 2002, chairs the Thesis Committee of Triological Society and has served multiple leadership roles in the American Head and Neck Society. Dr. Deschler's clinical interests cover the breadth of head and neck oncologic and reconstructive surgery including, advanced malignancies of the upper aerodigestive tract, salivary gland diseases, microvascular reconstruction and general head and neck reconstruction. His research interests overlap the breadth of these areas including speech following pharyngeal/Laryngeal surgery and reconstruction as well as management issues in the treatment of advanced head and neck malignancies.

The Myles L. Pensak, MD FACS, Mentorship Speed Networking Breakfast
Thursday, January 22
6:30 am - 7:55 am
Mediterranean 7-8
OPEN TO ALL ATTENDEES
NO PRE-REGISTRATION REQUIRED

Join colleagues across all stages of training and practice for a dynamic Speed Networking Breakfast designed to foster mentorship, peer connection, and candid discussion. This interactive session is open to all meeting attendees, including medical students, residents, and early- to mid-career otolaryngologists.

Participants will rotate among small-group tables, each facilitated around a focused topic, allowing for meaningful conversation, practical advice, and direct access to peers and mentors with shared interests. Whether you are navigating the match, considering fellowship or career paths, or balancing professional growth with personal priorities, this session offers targeted insights in a collegial, informal setting.

Planned Table Topics Include:

Medical Students

- Matching
- Away Rotations
- Research Opportunities

Residents

- Private Practice vs. Academic Medicine
- Research During Residency
- Career Paths and Decision-Making
- Contract Negotiation
- Fellowship Considerations

Early- to Mid-Career Otolaryngologists

- Mid-Career Promotion and Advancement
- Work-Life Integration

Space is limited at each table to encourage active participation and discussion. Attendees are encouraged to arrive early, enjoy breakfast, and be prepared to engage, ask questions, and share experiences.

TRIOLOGICAL SOCIETY COMBINED SECTIONS MEETING THURSDAY, JANUARY 22 - SATURDAY, JANUARY 24, 2026 JW MARRIOTT GRANDE LAKES, ORLANDO, FL

WEDNESDAY, JANUARY 21, 2026

1:00 - 3:00 Executive Committee (VPs do not attend) - Del Lago 1-2

3:00 - 5:00 Council - Del Lago 1-2

6:30 Council Dinner

THURSDAY, JANUARY 22, 2026

6:30 *The Myles L. Pensak, MD FACS, Mentorship Speed Networking Breakfast - open to all attendees - Mediterranean 7-8*

8:00 Welcome

8:10 Western Section Guests Introductions by Dinesh K. Chhetri, MD
Citation Awardees

Jennifer L. Long, MD PhD

Maie A. St. John, MD PhD

Guest of Honor

Andrew Allen Erman, MA/CCC-SLP

8:30 Eastern Section Guests Introductions by Natasha Mirza, MD FACS
Citation Awardees

Sujana S. Chandrasekhar, MD FACS

Richard L. Doty, PhD

Guest of Honor

Bert W. O'Malley Jr., MD FACS

8:50 Southern Section Guests Introductions by Earl H. Harley, MD FACS
Citation Awardees

Charles A. Hughes, MD MBA MPH FACS

Lamont R. Jones, MD MBA FACS

Guest of Honor

Mentoring in Medicine - Inherited, Infectious, and Transmissible

Kenneth M. Grundfast, MD FACS

9:10 Middle Section Guests Introductions by Craig A. Buchman, MD
Citation Awardees

Oliver F. Adunka, MD

Amit Walia, MD MSCI

Guest of Honor

A Path Less Travelled: Pearls from the Journey

Jacques A. Herzog, MD

Presentation of the George L. Adams, MD Young Faculty Award

Joseph Zenga, MD

9:30 Presidential Address

Alan G. Micco, MD FACS

9:45 Presentation of 13th Annual Patrick E. Brookhouser, MD Award for Excellence

Mark S. Persky, MD FACS

9:50 Presentation of the Binderup Prize

Daniel G. Deschler, MD FACS

9:55 Coffee Break - Visit Exhibits and Posters - Coquina North

PANELS

10:25 Triological Video Session - This is How I Do It

Moderator:

Vikash K. Modi, MD

Panelists:

10:25 Extended Endoscopic Posterior Nasal Neurectomy

John R. Craig, MD

10:35 Correction of Lower Lip Malposition with Fascia Lata Slings Following Anterior Mandibular Resection

Farooq Shahzad, MBBS MS FACS FAAP

10:45 Modified Transoral Resection of Diverticulum (MTORD) for Zenker's Diverticulum

Christina H. Ng, MD

10:55 The Knight's Visor Flap: A Bipedicled Advancement Flap for the Treatment of Vocal Fold Edge Defects

Peak Woo, MD FACS

11:05 Zebra Tracheoplasty

Karthik Balakrishnan, MD MPH FACS

11:15 The Legend and the Learner: A Fireside Chat with Robin T. Cotton, MD FACS, and Dana M. Thompson, MD MS MBA FACS

Moderator: Alessandro de Alarcon, MD MPH

Introduction: Jeffrey P. Simons, MD MMM

11:55 Modern Challenges Facing Our Surgical Journals

Moderator: Romaine F. Johnson, MD MPH FACS

Panelists: Robin W. Lindsay, MD MBA; Ahmad R. Sedaghat, MD PhD FACS; Samuel H. Selesnick, MD FACS

12:30 Lunch for all attendees - Visit Exhibits and Posters - Coquina North

12:30 Thesis Seminar: Your Triological Society Thesis is an Opportunity, Not an Obstacle (open to all attendees interested in joining our Society) - Del Lago 1-2

1:20 - 3:05
CONCURRENT SESSION A
HEAD & NECK
MEDITERRANEAN 7-8

Moderator: Chad A. Zender, MD FACS

- 1:20 2025 Triological Society Thesis with Distinction Award**
Practice Patterns in Management of Low to Intermediate Grade Salivary Gland Carcinoma: A Multi-Institutional, Multi-National Study - Mirabelle B. Sajisevi, MD
- 1:26 Head and Neck Free Flap Outcomes in Patients Over 80: A Large Single Surgeon Cohort Study**
Nicholas Hutchins, BA Jack Garcia, BS; Siddhant Tripathi, MD; Abigail Haslinger, BS; Emma Nienaber, BS; Yash Patil, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the outcomes of patients over the age of 80 who undergo head and neck free flap reconstruction and compare them to the demographics and outcomes of younger patients who undergo the same procedures.

Objectives: To evaluate perioperative outcomes and long-term survival in patients aged older than 80 undergoing head and neck free flap reconstruction compared to younger patients. Study Design: Retrospective cohort analysis. Methods: A retrospective chart review was performed on 1306 patients who underwent head and neck free flap surgery by a single surgeon at an academic center between December 2010 and June 2024. Patients were grouped by age (less than 80 vs 80 and older). Demographics, comorbidities, and postoperative outcomes were analyzed using Student's t-test and chi-squared testing. Results: Among 1306 patients, 93 were aged older than 80 years (mean age: 84.8). Compared to patients younger than 80 years (mean age: 60.9), the older cohort had a higher age independent Charlson Comorbidity Index ($p=0.002$) and were more likely undergoing cancer directed surgery ($p=0.004$), but showed no differences in sex ($p=0.872$), BMI ($p=0.135$), or preoperative radiation ($p=0.746$). The older group was less likely to undergo total laryngectomy ($p<0.001$) but had similar rates of intraoperative tracheostomy ($p=0.662$) and gastrostomy placement ($p=0.849$). Flap specific outcomes such as flap failure ($p=0.614$), return to OR ($p=0.680$), and hospital length of stay ($p=0.479$) were not significantly different. However, the older cohort had higher 30 day readmission rates ($p=0.011$), lower 2-year survival ($p=0.028$), and were more likely to discharge to a facility rather than home ($p<0.001$). Conclusions: Patients aged older than 80 had comparable flap specific surgical outcomes to younger patients but experienced higher readmission rates, reduced 2 year survival, and were less likely to discharge home. These differences appear more related to comorbid burden than age itself. Careful preoperative risk stratification should guide surgical decision making in elderly patients undergoing free flap reconstruction.

- 1:32 Rural-Urban Disparities in Thyroid Cancer Staging at Diagnosis: A Retrospective Study**
Naveen Raj, BS Mahir Ali, BS; Sanjana Nallapaneni, BS MPH; Jason Thuener, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify disparities in cancer staging between rural and urban patient populations.

Objectives: Disparities in thyroid cancer incidence have been demonstrated between residents of rural and urban regions. In this study, we explored the rural-urban differences in thyroid cancer staging at the time of diagnosis. Study Design: Retrospective design. Methods: The Surveillance, Epidemiology, and End Results (SEER) Program was

queried, identifying a total of 357,123 patients. Inclusion criteria were patients diagnosed with primary site thyroid cancer with microscopic confirmation and who were 20 years of age or older. Exclusion criteria were patients with unknown demographic or clinical information. Rural Urban Continuum Codes (RUCC) were used to define rural versus urban status, with urban defined as any metropolitan county and rural any nonmetropolitan county. Staging was classified as localized, regional, or distant to maintain continuity over time. RStudio was used to conduct a multinomial logistic regression. Age, sex, and race were controlled for in a stepwise fashion. Results: Rural patients had lower odds of regional stage diagnosis (aOR 0.879, CI: 0.856-0.903) but had higher odds of distant stage diagnosis (aOR 1.09, CI: 1.03-1.15). Rural patients had a slightly higher predicted probability of presenting with distant stage thyroid cancer (4.06% vs. 3.68%) and local stage disease (71.3% vs. 67.5%) compared to urban patients, while urban patients had a higher probability of regional stage presentation (28.8% vs. 24.7%). Older age (55 or older) and male sex were strongly associated with distant stage disease. Minority status was significantly associated with higher odds of advanced stage diagnosis. Conclusions: Rural residence is associated with later stage thyroid cancer diagnosis, even after adjusting for demographic factors.

1:38 Clinical and Pathway Predictors of Postoperative Radiotherapy Delay in Head and Neck Cancer: An Inter Subsite Analysis

Sagar Singh Matharu, BS Leena Abu-Zahra, BS; Jazzmyne Adams, DrPH; Jennifer Bruening, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify clinical and workflow predictors of postoperative radiotherapy delay in head and neck cancer patients and guide targeted quality improvement interventions.

Objectives: Compare postoperative radiotherapy (PORT) delay drivers across head and neck squamous cell carcinoma (HNSCC) subsites (oral cavity, oropharynx, larynx/hypopharynx) and rank timeline intervals by correlation with total delay to inform workflow improvements. Evaluate care-pathway reasons (e.g., re-biopsy, readmission) that lengthen delays. Study Design: Retrospective cohort study via electronic health record chart review of 1,072 surgically treated HNSCC patients (2013-2023) at a single academic center. Methods: Of 1,072 surgically treated HNSCC patients (oral cavity n=666, oropharynx n=333, larynx/hypopharynx n=73), complete PORT timelines were available in 218, 13, and 10 patients. Delay was defined as PORT initiation greater than 6 weeks postoperatively. We measured surgery to pathology report, surgery to radiation referral, referral to consult, and consult to PORT start intervals; recorded clinical predictors (age, sex, tobacco/alcohol history, T/N stage, bone resection, free-flap reconstruction); and documented delay reasons. Analyses included Kruskal-Wallis, chi-square, Spearman rank correlation, Mann-Whitney U, and linear regression. Results: Median time to PORT was 49 days for oral cavity and larynx/hypopharynx and 41 days for oropharynx (p=0.37), with no difference in delay rates by subsite (p=0.12). Longer delays correlated with greater smoking pack years (p<0.001), advanced stage (T-stage p=0.003; N-stage p=0.04), bone resection (p<0.001), and free-flap reconstruction (p=0.015). Surgery to referral showed the strongest correlation with total delay ($r^2=0.69$), followed by referral to consult ($r^2=0.57$) and consult to PORT ($r^2=0.34$). Among 168 delayed patients, additional biopsy/excision was associated with a mean increase of 34 days (p=0.008), and readmission with 11 days (p=0.002). Conclusions: PORT delays are primarily driven by clinical predictors disease burden and surgical complexity and once initiated, are lengthened by care pathway factors such as re-biopsy and readmissions, rather than demographics or subsite.

1:44 Q&A

1:48 Impact of Neck Dissection Laterality Relative to Anastomosis Side on Head and Neck Microvascular Reconstruction Outcomes

Jack Garcia, BS Nicholas Hutchins, BS; Siddhant Tripathi, MD; Abigail Haslinger, BS; Christine Lee, BS; Yash Patil, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe how neck dissection laterality relative to the arterial anastomosis site affects free flap outcomes in head and neck microvascular reconstruction.

Objectives: To compare postoperative outcomes and long-term survival in patients who underwent a neck dissection on the ipsilateral versus contralateral side relative to the arterial vessel recipient site. **Study Design:** Retrospective cohort study. **Methods:** A retrospective chart review was performed on patients who underwent head and neck microvascular reconstruction with a unilateral neck dissection by a single surgeon at an academic center between December 2010 and June 2024. Patients were categorized based on whether the neck dissection was performed on the ipsilateral or contralateral relative to the arterial recipient vessel used for microvascular anastomosis. Demographics, comorbidities, and postoperative outcomes were analyzed using Student's t-test and chi-squared testing. **Results:** Of the 515 patients who underwent a unilateral neck dissection, 427 underwent a neck dissection on the ipsilateral side and 88 underwent a contralateral neck dissection relative to anastomosis site. There were no significant differences in sex ($p = 0.482$), age ($p = 0.799$), or age-dependent Charleston Comorbidity Index ($p = 0.214$) between the two cohorts. Preoperative radiation was more common in the contralateral group ($p < 0.001$). Tumor burden by staging ($p = 0.076$) and use of vessels originating external carotid artery system ($p = 0.978$) did not differ significantly between cohorts. Rates of flap failure ($p = 0.843$), 30-day readmission ($p = 0.296$), and 2-year recurrence free survival ($p = 0.109$) were also comparable. **Conclusions:** In this large, single-surgeon cohort, neck dissection laterality relative to arterial recipient vessel anastomosis did not significantly impact short-term postoperative outcomes or long-term survival in patients undergoing free flap reconstruction. These findings suggest that flap success and oncologic outcomes are not compromised by side selection of neck dissection relative to arterial recipient vessel site, offering flexibility in operative planning.

1:54 A Case Series and Literature Review on Pseudo-Diverticulum Excision in Post-Laryngectomy Patients Using the Da Vinci Single Port Robotic System

Prachi N. Parikh, PharmD Craig A. Bollig, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how the Da Vinci Single Port (SP) system enables a safe, minimally invasive alternative to current techniques for excision of symptomatic pseudo-diverticulum in post-laryngectomy patients.

Objectives: To describe the clinical course of three patients with symptomatic pseudo-diverticulum post-laryngectomy who underwent pharyngeal diverticulectomy using the da Vinci SP system, and to review the literature on SP-assisted transoral robotic excision of pseudo-diverticulum. **Study Design:** Case series and literature review. **Methods:** This case series reports three patients who developed bothersome regurgitation and dysphagia secondary to pseudo-diverticulum formation following a total laryngectomy with primary closure. All three patients underwent pseudo-diverticulum excision using the da Vinci SP system. A literature search was conducted within PubMed for publications on the use of the da Vinci SP system for pharyngeal diverticulum excision. **Results:** All three patients underwent successful pharyngeal diverticulectomy with the da Vinci SP system. Total robotic surgical time was less than 10 minutes for each case. They experienced immediate resolution of regurgitation postoperatively with no recurrence of symptoms at more than one year follow-up. The SP system enabled improved visualization and instrument control with enhanced retraction using two instrument arms and precise tissue division using a third cautery-equipped arm. There are currently no published studies describing the application of the SP system in this setting. **Conclusions:** The da Vinci SP system offers a novel and effective approach for patients who develop symptomatic pseudo-diverticula following total laryngectomy. SP assisted surgery offers enhanced visualization, bimanual retraction, and improved access compared to alternatives. Further studies are needed to validate its role in managing post-reconstructive complications and to assess long-term functional outcomes.

2:00 Does Head and Neck Cancer Staging Influence the Incidence of Depression and Anxiety? An Epic Cosmos Analysis

Peter J. Attia, BA Nada Wahba, BS; Ghayoor Mir, DO; Dylan Roden, MD MPH

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the association between head and neck cancer (HNC) and cancer staging with psychiatric disease.

Objectives: Psychiatric comorbidities are increasingly recognized in patients with cancer, particularly those with head and neck cancer (HNC). We investigate whether higher cancer staging is associated with increased 12 month incidence of major depressive disorder (MDD) and anxiety. Study Design: Nationwide longitudinal EHR cohort analysis using Epic Cosmos. Methods: Data from 2015-2025 identified patients with pharyngeal, laryngeal, and oral cancers with American Joint Committee on Cancer (AJCC) staging data. Incidence (encounter diagnosis data) and prevalence (diagnosis + problem list data) of MDD and anxiety were calculated for the 12 months pre- and post-staging. Pre-staging incidence served as an internal control. Stratification by cancer stage assessed whether risk is related to staging (reference: stage I). Risk differences and risk ratios (RRs) with 95% confidence intervals (CI) were calculated ($\hat{\pm}=0.05$). Results: In pharyngeal cancer (n=34,383), MDD incidence increased by 3.1% (RR:1.59 [1.50-1.68]); anxiety increased by 5.4% (RR:1.70 [1.63-1.78]). Post-staging incidence increases were observed in laryngeal (n=13,645, MDD:3.0%, RR:1.43 [1.32-1.55], anxiety:5.3%, RR:1.51 [1.42-1.62]) and oral cancers (n=17,225, MDD:3.4%, RR:1.95 [1.83-2.09]; anxiety:4.6%, RR:1.08 [1.01-1.15]). Post-staging, MDD prevalence was 15.4% (pharyngeal), 17.0% (laryngeal), and 17.8% (oral); anxiety prevalence was 21.8%, 24.5%, and 23.8%, respectively. All sites showed significantly elevated risk of MDD and anxiety at stage III-IV vs stage I. Stage IV laryngeal cancer had the greatest risk of MDD (RR:1.51 [1.31-1.74]) and anxiety (RR:1.54 [1.37-1.72]) relative to other sites. Conclusions: Advanced cancer stage is associated with increased psychiatric morbidity, suggesting that screening should be prioritized in newly diagnosed late stage HNC. This is among the first large scale analyses linking AJCC cancer stage to psychiatric disease in HNC patients.

2:06 A Prospective Evaluation of the Economic Impact of a Deep Learning Algorithm for Automated Head and Neck Surgery Referral Triage

Stephanie M. Younan, BS MPH Pearl Doan, BS; Kevin Xin, MD; Patrick Ha, MD; Katherine Wai, MD; Nicole T. Jiam, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to analyze the economic impact of implementing a deep learning algorithm for automated patient referral triage in a Head and Neck Surgical Oncology practice.

Objectives: Manual patient referral triage may be subject to delays and inaccuracies. This study quantifies the financial impact and cost savings from implementing a deep learning algorithm for assistive patient triage for a head and neck surgical oncology center. Study Design: Prospective Cost-Benefit Analysis. Methods: A prospective cost benefit analysis comparing a deep learning algorithm to manual triage was conducted on all incoming new patient head and neck referrals (n=214) between December 2024 to February 2025. Financial impact was calculated from projected FTE savings, increased surgical conversion, and algorithm expenses to determine the net operating gain. Results: Automated head and neck referral triage generated a net annual profit of \$566,909.38 and a 49x return on investment (ROI). This profit stems from \$64,054.32 in labor cost savings, \$502,855.06 of additional surgical profit (with an operating margin of 5.4%), and \$11,613 of annualized algorithm expenses. AI assistive triage displaces 700 hours (0.34 FTEs) annually, facilitating staff reallocation to other “top of the license” work. Beyond direct personnel salary gains, the algorithm’s precision identified 19% of new patient visits as low-yield and/or non-surgical. Reallocating these newly available clinic slots to appropriate surgical candidates could potentially generate an additional \$9.3 million in downstream surgical revenue annually. Conclusions: Integrating a deep learning algorithm for head and neck surgical oncology referral triage provides substantial, quantifiable financial benefits through FTE savings and high surgical conversion rates in clinic. These findings highlight AI’s significant economic advantages in healthcare,

optimizing resource utilization and streamlining patient pathways for improved financial sustainability and timely access to specialized care.

2:12 Q&A

PANEL

2:15 - 3:05

Neoadjuvant Therapy for Head and Neck Squamous Cell Carcinoma

Moderator: Steven J. Wang, MD

Panelists: Joseph M. Curry, MD FACS; Jeffrey C. Liu, MD FACS; Miriam Lango, MD FACS

3:05 - 3:35 Break - Visit Exhibits and Posters- Coquina North

1:20 - 3:05

CONCURRENT SESSION B

OTOLOGY/NEUROTOLOGY

COQUINA SOUTH

PANEL

1:20 - 2:10

Pulsatile Tinnitus - Evaluation and Management

Moderator: Daniel H. Coelho, MD FACS

Panelists: David J. Eisenman, MD; Bradley W. Kesser, MD; H. Jeffrey Kim, MD

Moderator: Sujana S. Chandrasekhar, MD FACS

2:10 Assessing the Utility of Large Language Models for Procedure Billing in Otolaryngology and Neurotology

Mark J. Schuweiler, MSE Andy S. Ding, MD MSE; Francis X. Creighton, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand capabilities of large language models (LLMs) in generating and interpreting billing codes for otology procedures.

Objectives: Accurate CPT coding is important for appropriate billing and reimbursement but is challenging due to its complexity. Physicians often lack access and training on clinical coding and may inaccurately code procedures, reducing reimbursement efficiency. Emerging AI platforms may offer solutions, but performance in otology/neurotology is unclear. **Study Design:** Cross-sectional. **Methods:** Four LLMs (Google Gemini 2.5, OpenAI ChatGPT 4.1, Meta Llama 4.0, and Anthropic Claude Opus 4) performed three tasks for each ACGME required otology/neurotology procedure: 1) generating a current procedural terminology (CPT) code from procedure description; 2) producing a description from a CPT code; and 3) estimating work relative value units (RVUs) from a CPT code. Three reviewers classified descriptions as: correct, wrong procedure, wrong version of correct procedure, lacking significant details of correct procedure, or including additional incorrect details. CPT and RVU outputs were labeled as correct or incorrect. Descriptions and CPT outputs were compared to ACGME case log coding guidelines, and RVU outputs to the Centers for Medicare and Medicaid Services 2025 Physician Fee Schedule. Chi-square and paired ANOVA tests were used to compare error rates. **Results:** Average description generation error rate was 63.5% (Claude 27.1%, Gemini 79.2%, Llama 52.1%, ChatGPT 95.8%; $p=0.02$). Of these errors, 50.0% were “wrong procedure”, and 37.7% were “wrong version of correct procedure”. CPT generation error rates were: Claude 19.6%, Gemini 19.6%, Llama

31.4%, and ChatGPT 64.7% ($p < 0.001$). Claude declined RVU estimation. Mean absolute RVU error rates were: Gemini 5.21, Llama 7.05, and ChatGPT 6.67 ($p = 0.034$). Conclusions: LLMs vary significantly in their billing accuracy for otology procedures. High descriptive error rates must be addressed before clinical implementation.

2:16 Performance Differences Between Identification and Discrimination Questions During Objective Music Testing

Timothy Shim, MD Lancelot P. Herpin, BA; Camden M. De Sanctis, BS; Alexander Chern, MD; Anil K. Lalwani, MD; Tiffany P. Hwa, MD

Educational Objective: At the conclusion of this presentation, the audience should be able to understand that cochlear implant users exhibit substantial differences between identification and discrimination tasks across multiple objective domains of music perception testing.

Objectives: To assess music identification (naming the stimulus) and discrimination (hearing a difference between two stimuli) across multiple music domains in experienced cochlear implant (CI) users, and to compare performance between these two testing formats. **Study Design:** Prospective pilot study. **Methods:** Twenty adult participants with unilateral or bilateral cochlear implants ($>=3$ months post-activation) were enrolled. Participants completed a testing tutorial followed by a 120-item multiple-choice assessment compiled from prior literature, divided into 30 questions across four objective music domains: pitch, melodic contour, timbre, and polyphony. Testing domains were sub-divided into 20 discrimination and 10 identification questions. **Results:** Identification accuracy was significantly lower than discrimination accuracy in three of the four tested objective music domains: melodic contour (59.0% $\pm$ 12.4% vs 71.3% $\pm$ 15.2%, $p = 0.014$), timbre (56.5% $\pm$ 21.1% vs 96.8% $\pm$ 3.4%, $p < 0.0001$), and polyphony (38.5% $\pm$ 25.4% vs 64.0% $\pm$ 16.9%, $p < 0.001$). In contrast, pitch accuracy did not significantly differ between identification and discrimination questions (61.0% $\pm$ 13.7% vs 66.3% $\pm$ 12.7%, $p = 0.178$). **Conclusions:** This pilot study directly compares identification and discrimination performance across several objective music domains in CI users. Identification accuracy was significantly lower in three of four objective music domains, with the largest disparity observed in the timbre domain. These findings suggest that identification and discrimination assess distinct aspects of music perception: identification reflects real world listening but depends on prior experience, while discrimination provides a purer measure of auditory function without contextual depth. These nuanced differences should be considered in the assessment of music perception after CI.

2:22 Hearing Loss Associated with Regional Brain Amyloid in Our Cohort

Stuart Dillon Powell, ME Froogh Aziz, MS; Adam M. Brickman, PhD; Mark A. Eckert, PhD; Jose A. Luchsinger, MD PhD; Justin S. Golub, MD MS

Educational Objective: Hearing loss has been linked to the development of dementia; our study attempts to further characterize this relationship. At the conclusion of this presentation, the participants should be able to describe the relationship between hearing loss and dementia through biomarkers.

Objectives: To investigate a possible association between hearing loss (HL), measured objectively by pure tone average in the better ear (PTA) and word recognition score (WRS), and a dementia biomarker, measured using amyloid positron emission tomography (PET). **Study Design:** Cross-sectional analysis of a prospective cohort study. **Methods:** 223 participants from our study were included. Primary outcomes included amyloid standardized uptake value ratio (SUVR) on PET imaging for whole brain and regions. Primary exposures were PTA and WRS. Multivariable linear regression controlling for age, sex, education, hearing aid use, and cardiovascular disease were used. **Results:** Average participant age (SD) was 65.6 (3.8) years and average PTA was 21.0 (8.5). Amyloid SUVR increased by 0.03 ($p=0.032$) per 10dB worsening (increase) in PTA in the left temporal region and trended toward significance in the whole brain (0.02 per 10dB, $p=0.07$); this association was nonsignificant in all other brain regions. When participants with the lowest WRS scores were included, amyloid SUVR increased by 0.06 in the whole brain per 10% worsening (decrease)

in WRS ($p=0.013$); this relationship held in the left temporal (-0.05 , $p=0.042$), right temporal (-0.05 , $p=0.020$), left parietal (-0.07 , $p=0.011$), right parietal (-0.07 , $p=0.002$), left cingulate (-0.07 , $p=0.014$), and right cingulate regions (-0.08 , $p=0.007$). Conclusions: Worse hearing was associated with higher amyloid in several brain regions on amyloid PET scans. The reason for the association, and whether hearing could be causally related to amyloid plaque, requires further investigation. Further analysis is needed to substantiate these findings and ensure robustness.

2:28 Association Between Immune Checkpoint Inhibitors and Otologic Symptoms: A Multi-Institutional Propensity Score Matched Study

Zachary E. Thompson, BS Jason Chwa, BS; Austin Luong, BS; Alexander T. Hong, BS; Janet S. Choi, MD MPH

Educational Objective: Following this presentation, participants should understand the association between ICI therapy and the incidence of otologic symptoms, including sensorineural hearing loss and tinnitus, in oncology patients.

Objectives: Immune checkpoint inhibitors (ICIs) are therapies designed to prevent cancer cell evasion from the immune system, which can cause immune related adverse events, including otologic symptoms. Prior case reports have described the reversal of symptoms with intratympanic steroids. This study investigates the association between ICIs and the development of hearing loss, tinnitus, and vertigo among oncology patients. **Study Design:** Propensity score matched study. **Methods:** TriNetX, a multi-institutional research database, was queried for U.S. adults aged 18 years or older with neoplasms of digestive, respiratory, bone, skin, breast, genitourinary, lymphoid, and ill defined origin or metastatic neoplasms. Patients who received ICIs were matched to those who had never received ICIs using propensity scores based on demographics, cancer type, and comorbidities. Outcomes were queried using ICD-10 codes for sensorineural hearing loss, tinnitus, and vertigo. Odds ratios (OR) were calculated in TriNetX. **Results:** Of 4,243,324 adults identified 79,744 (1.88%) received ICI therapy. After propensity score matching 71,192 patients were included in each cohort. Incidence of otologic symptoms one year after diagnosis was 1.46% in the ICI cohort and 1.22% in the non-ICI cohort. ICI use was associated with significantly increased odds of sensorineural hearing loss (OR: 1.14; 95% CI: 1.01 - 1.28) and tinnitus (OR: 1.23; 95% CI: 1.07 - 1.42). No association between ICI use and vertigo was seen (OR: 1.11; 95% CI: 0.91 - 1.36). **Conclusions:** ICIs are associated with significantly increased odds of sensorineural hearing loss and tinnitus among oncology patients. Further studies are warranted to explore potential causal relationships and develop evidence based monitoring strategies.

2:34 Q&A

2:38 Impact of GLP-1 Receptor Agonists on Pulsatile Tinnitus in Patients with Idiopathic Intracranial Hypertension: A TriNetX Cohort Study

Jared B. Stewart, BS Daniel Coelho, MD; Aristides Sismanis, MD

Educational Objective: Glucagon-like peptide-1 receptor agonist (GLP-1 RA) treatment has been shown to benefit many neurological and visual symptoms of idiopathic intracranial hypertension (IIH) however, its impact on otological symptoms of IIH has not been characterized. Participants will be able to assess the effect of GLP-1 RA treatment on outcomes of pulsatile tinnitus (PT) in patients with IIH, compared to conventional weight management therapies.

Objectives: To characterize the impact of glucagon-like peptide-1 receptor agonist (GLP-1 RA) treatment on outcomes of pulsatile tinnitus (PT) in patients with idiopathic intracranial hypertension (IIH). **Study Design:** A retrospective cohort study using de-identified electronic health record data from the TriNetx Database. **Methods:** The study was conducted within TriNetX using the Global Collaborative Network, a database of de-identified records from 150 healthcare organizations. Adult patients diagnosed with IIH between January 1, 2020, and July 1st, 2025, were categorized into two cohorts according to post diagnosis treatments; those exposed to GLP-1 RAs and a control group receiving conventional weight management therapies (acetazolamide, topiramate, dietary counseling) without GLP-

1 RA exposure. Patients with prior cerebrovascular disease, structural malformations, pregnancy, or DPP-4 inhibitor use within one year before IIH diagnosis were excluded. The primary outcome is the incidence of pulsatile tinnitus following the initiation of therapy. Propensity score matching was applied to balance the cohorts, resulting in 3,670 matched pairs based on baseline characteristics (age, sex, BMI, and comorbidities). Analysis of the PT outcomes and calculations of risk ratios were performed within the TrinetX software at follow-up intervals of 3 months, 6 months, 1 year, 3 years, and 5 years. Results: GLP-1 RA treatment was associated with a significantly reduced risk of pulsatile tinnitus at multiple time points: 3 months (RR 0.432, 95% CI 0.259-0.718), 6 months (RR 0.544, 95% CI 0.312-0.949), 3 years (RR 0.645, 95% CI 0.464-0.897), and 5 years (RR 0.676, 95% CI 0.489-0.935). No statistically significant difference was observed at the 1-year follow-up (RR 0.76, 95% CI 0.519-1.114). Conclusions: In adult patients with IIH, GLP-1 RA exposure is associated with a reduced risk of pulsatile tinnitus outcomes when compared to conventional therapies, highlighting the need for further investigations into the otological benefits of GLP-1 RAs.

2:44 Speech Quality Perception in Bilateral and Bimodal Cochlear Implant Users

Ramzi Khalid Elased, AB Isaac L. Alter, AB; Nandita V. Vegesna, BS; Megan E. Kuhlmeier, AuD; Meghan A. Despotidis, AuD; Anil K. Lalwani, MD

Educational Objective: At the conclusion of this presentation, the participants should understand the impact of bimodal and bilateral cochlear implants on speech quality perception.

Objectives: Although cochlear implants (CIs) improve speech understanding, many users continue to struggle with speech quality perception (SQP). This study tests the hypothesis that the better hearing ear drives SQP in cochlear implant users, particularly in bilateral and bimodal listeners. Study Design: Cross-sectional. Methods: Fourteen bimodal and nine bilateral CI users recruited from a tertiary medical center completed the Columbia Speech Quality Instrument (CSQI) under three listening conditions: each ear individually and then binaurally. Paired t-tests compared CSQI scores across conditions, and unpaired t-tests compared these to normative data from normal hearing controls. Results: In bimodal CI users, CSQI scores improved with binaural listening (mean=60.1, SD=10.3) compared to CI alone (mean=55.5, SD=8.2; $p=0.05$) but not compared to hearing aid alone (mean=55.1, SD=15.9). The CI was not always the poorer performing ear; binaural CSQI scores were significantly higher than the worse ear (mean=50.2, SD=11.1; $p=0.001$) but comparable to the better ear (mean=60.3, SD=12.0). In bilateral CI users, binaural CSQI scores (mean=59.1, SD=7.5) were higher than the worse ear (mean=48.4, SD=16.2, $p=0.05$) but comparable to the better ear (mean=59.7, SD=10.3). Both groups had lower binaural SQP than normal hearing controls ($p<0.001$). Qualitatively, bimodal users rated CI alone speech as less natural ($p=0.040$), more cartoonish ($p=0.013$), and less speech-like ($p=0.010$). Bilateral users found binaural hearing was clearer than either ear alone ($p<0.02$). Conclusions: SQP following cochlear implantation is largely determined by the better hearing ear. In both bimodal and bilateral users, binaural input improves perceptual quality, but poor input from the worse ear does not significantly degrade overall SQP.

2:50 Integration of Audiometric Data into a Clinical Data Warehouse: A Proof of Concept for Advancing Hearing Sciences

Maya Johannah Livni, BS Nathaniel B. Verhagen, MD; Alexander J. Stoddard, MS; Karl W. Doerfer, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the limitations of traditional audiometric data systems (e.g., Noah) for clinical research: Recognize why systems like Noah, though standardized for clinical use, present significant challenges for large-scale data analysis and research integration.; describe a systematic approach to integrating structured audiometric data into a Clinical Research Data Warehouse (CRDW): Attendees will be able to outline how audiometric data can be extracted, parsed, de-identified, and linked to clinical, demographic, and procedural datasets to enable scalable research; appreciate the clinical and research implications of linking audiometric data with broader patient health information: Understand how this integration enables exploration of associations between hearing loss and comorbidities, supports outcome

evaluation (e.g., surgical effectiveness), and enhances opportunities for AI-driven clinical decision support.

Objectives: Noah System 4 (Noah) is widely used for audiometric data storage but lacks interoperability with broader healthcare databases, limiting its utility in large-scale hearing research. This study aims to validate a novel methodology for extracting and structuring audiometric data from the Noah platform into a Clinical Research Data Warehouse (CRDW) for clinical research. The feasibility and accuracy of this methodology in analyzing otologic pathologies and surgical outcomes are examined across six distinct otologic pathologies, including Meniere's disease, otosclerosis, tympanic membrane perforation, middle ear effusion, cholesteatoma, and sudden sensorineural hearing loss (SSNHL). **Study Design:** A retrospective observational analysis was performed, extracting audiometric data from Noah using structured XML files parsed and formatted into relational tables. **Methods:** Using unique patient identifiers, the Noah-derived audiometric data were matched and integrated into a structured relational database used to generate clinical insights from EHR data. These process unified clinical, demographic, and procedural datasets, enabling further analysis. Additionally, preoperative and postoperative audiogram results were compared for patients with otosclerosis undergoing stapedectomy to further demonstrate the applicability of this approach. Data was processed using SQL queries, and results were compared with existing literature for validation. **Results:** Audiometric data from 2,071 patients with right-sided otologic pathologies were successfully integrated into the CRDW, enabling detailed analyses of audiometric outcomes across various pathologies. Analysis of PTAs and WRS across the six pathologies showed consistent results with existing literature that used traditional data extraction methodologies, validating the accuracy of this study. **Conclusions:** This study demonstrates the feasibility and accuracy of integrating audiometric data into a CRDW. This scalable approach enables large-scale analysis of hearing outcomes in relation to broader health conditions, supporting research and improvements in clinical care.

2:56 An Umbrella Review of Therapeutic Strategies for Meniere's Disease: Evaluating Medical, Surgical, and Adjunctive Interventions

Warren B. Chun, MD Shaun A. Nguyen, MD; Kaiwen Chen, BS; Robert F. Labadie, MD PhD; Ted a. Meyer, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to evaluate the relative efficacy, safety profiles, and evidence quality of various options for Meniere's disease.

Objectives: To evaluate the strength, consistency, and quality of evidence across existing systematic reviews and meta-analyses encompassing all therapeutic approaches of Meniere's disease. **Study Design:** Umbrella review. **Methods:** A comprehensive literature search was conducted in CINAHL, Cochrane Library, PubMed, and Scopus from inception through April 28, 2025. This umbrella review synthesized 22 systematic reviews with meta-analyses of randomized and nonrandomized studies evaluating treatments for Meniere's disease. Included interventions spanned medical therapies (e.g., intratympanic gentamicin, corticosteroids, betahistine), surgical procedures (e.g., endolymphatic sac decompression), device based approaches, and complementary modalities (e.g., acupuncture). Outcomes included vertigo control, hearing changes, tinnitus aural fullness, and adverse events. **Results:** Intratympanic gentamicin yielded the highest rates of complete and substantial vertigo control (up to 89%) but posed a risk of hearing loss, including a 23% subjective reduction rate. Intratympanic steroids showed moderate vertigo control with fewer auditory risks. Betahistine and positive pressure therapies produced variable results. Acupuncture demonstrated improvements across multiple symptom domains. Endolymphatic sac decompression achieved 75-82% control at 1-2 years, with some decline over time. Cochlear implantation improved speech perception and tinnitus in patients with profound hearing loss. **Conclusions:** This is the first umbrella review comprehensively evaluating medical, surgical, device based, and complementary therapies for Meniere's disease. While intratympanic gentamicin offers the most robust vertigo control, it carries auditory risks and is supported by low quality evidence. More conservative treatments like steroids and betahistine provide modest benefits with favorable safety profiles. The heterogeneity and generally limited quality of the evidence base highlight the need for individualized treatment and well designed comparative effectiveness trials.

3:02 Q&A

3:05 - 3:35 Break - Visit Exhibits and Posters - Coquina North

3:35 - 5:25
CONCURRENT SESSION C
RHINOLOGY & ALLERGY
MEDITERRANEAN 7-8

Moderator: Marilene B. Wang, MD FACS

3:35 Impact of Anatomical Variability and Spray Technique on Olfactory Cleft Deposition in Intranasal Drug Delivery

Adam N. Kaakati, BSE Dennis Onyeka Frank-Ito, PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how intranasal spray parameters and intra-individual anatomical variation influence drug deposition in the olfactory cleft and inform personalized delivery strategies.

Objectives: Targeted drug delivery to the olfactory cleft via intranasal sprays presents a clinical challenge due to its anatomically posterior location and intra-individual variability in nasal anatomy, including nasal cycling and anterior nasal cavity morphology. This study aimed to identify intranasal spray parameters and user related factors that optimize olfactory cleft deposition, and to quantify intra-individual asymmetry in unilateral olfactory deposition. Study Design: Computational study using subject specific nasal models. Methods: High-resolution radiographic images from 20 adults (10 males, 10 females) with healthy nasal anatomy were used to create subject specific airway models. Airflow and drug delivery simulations were performed to model resting inspiration and particle transport. Simulated spray parameters included five head positions, three spray velocities (1, 5, and 10 m/s), four plume angles (10°, 20°, 40°, and 70°), and four release locations. For each nostril, 175,000 particles (1-50 µm) were administered. Unilateral olfactory deposition was quantified and analyzed using a one-sample t-test with 95% confidence intervals and Cohen's d. Results: Average maximum unilateral olfactory deposition was 7.87% +/- 8.04% (range: 0-28.06%). Intra-individual asymmetry in unilateral olfactory deposition was significant (mean difference: 8.82% +/-7.68%, p<0.001; CI: 5.22-12.41%), with a large effect size (d=1.15). Only 2 of 20 subjects had the same parameter combination that delivered maximum deposition to both the left and right olfactory clefts. Mygind and supine positions, 1 m/s velocity, 10° plume angle, and 20 mm superior-superior release yielded the highest deposition. Conclusions: Marked variability in olfactory cleft deposition exists both between and within individuals. Personalizing spray technique parameters may enhance therapeutic outcomes in olfactory-directed intranasal drug delivery.

3:41 Impact of Elexacaftor/Tezacaftor/Ivacaftor Therapy on Sinonasal Mucosal Function in Patients with Cystic Fibrosis

Michelle Kim, BA Nathan Luzum, MD; Anna Zemke, MD PhD; Adam Kimple, MD PhD; Dennis Frank-Ito, PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how Elexacaftor/Tezacaftor/Ivacaftor (ETI) therapy affects sinonasal mucosal heat exchange and clinical symptomatology in patients with cystic fibrosis.

Objectives: Patients with cystic fibrosis (CF) commonly suffer from chronic sinonasal inflammation and impaired mucosal function. This study employed computational fluid dynamics (CFD) to quantify changes in sinonasal mucosal heat exchange (MHE) before and after initiation of Elexacaftor/Tezacaftor/Ivacaftor (ETI) therapy, and to correlate these findings with symptom and radiographic scores. **Study Design:** Computational modeling study. **Methods:** Three-dimensional sinonasal airspace reconstructions were generated from pre- and post-ETI radiographical images of 18 patients with CF (11 males, 7 females). Each unilateral sinonasal cavity was classified as either the more obstructed side (MOS) or less obstructed side (LOS) based on baseline airflow resistance. CFD simulations were performed under gentle inspiratory flow to calculate MHE. Changes in MHE, SNOT-22, and Lund-Mackay scores were analyzed using Wilcoxon signed-rank testing. DIFF-ETI was defined as the difference between post- and pre-treatment values. **Results:** Bilateral MHE significantly decreased following ETI therapy (Median: PRE = 137.10W/m², POST = 112.18W/m²; p<0.01). LOS MHE also significantly declined (PRE = 160.04W/m², POST = 122.90W/m²; p<0.01). MOS MHE trended downward (PRE = 116.46W/m², POST = 107.61W/m²) but did not reach significance (p=0.06). Both SNOT-22 (PRE = 17, POST = 5.5; p<0.01) and Lund-Mackay scores (PRE = 10, POST = 8; p<0.01) improved significantly. Changes in MOS MHE were weakly and non-significantly correlated with changes in SNOT-22 and Lund-Mackay scores (R ≈ 0.25). **Conclusions:** ETI therapy is associated with a significant reduction in sinonasal mucosal heat exchange. While clinical and radiologic improvements were observed, changes in heat exchange did not strongly correlate with symptom scores.

3:47 Comparative Outcomes in eCRSwNP: Biologics vs. Topical Therapy -- Clinical Effectiveness and Predictors of Symptom Response

Brandon Tapasak, MD; Parker Vaughan, MD (Presenter); Hye Yoon, MD; Ibtisam Mohammad, MD; Stilianos Kountakis, MD PhD; Emad Al Haj Ali, MD; Diana Bigler, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the use of biologics in eosinophilic chronic rhinosinusitis and predictors of outcomes.

Objectives: To evaluate the use of topical medication therapy and biologics in the treatment of eosinophilic chronic rhinosinusitis with nasal polyps. **Study Design:** Retrospective cohort, literature review. **Methods:** We retrospectively analyzed 20 patients with eCRSwNP who failed topical medication management and were treated with biologics. Pre- and post-treatment SNOT-22 scores were compared using paired t-tests. Lund-Kennedy (LK) endoscopy scores and demographic/comorbidity associations were also assessed. Outcomes were compared to a second cohort of 20 patients with similar eosinophilic pathology managed with medical therapy, including topical corticosteroids, saline irrigations, budesonide irrigations, and montelukast. **Results:** Among biologic treated patients, mean SNOT-22 scores improved significantly (36.6 -> 18.9, p = 0.0038), with an average reduction of 17.7 points (95% CI: 6.8-28.7). Female sex was associated with higher post-treatment SNOT-22 scores (p = 0.007). LK endoscopy scores did not significantly change. Compared to the medical management cohort, biologic treated patients had significantly lower post-treatment SNOT-22 scores (18.9 vs. 44.4, p = 0.002), while LK scores remained statistically similar (p = 0.16). **Conclusions:** Biologic therapy significantly improves symptom burden in eCRSwNP and is more effective than standard medical therapy based on SNOT-22 outcomes. Endoscopic findings may not correlate with symptom improvement. Female patients may experience less symptomatic benefit. These findings support the targeted use of biologics and highlight the need for individualized treatment strategies.

3:53 Incidence and Risk of Chronic Rhinosinusitis in Adults with Head and Neck Cancer: A Systematic Review with Meta-Analysis

John Dewey, MD Heli Majeethia, BS; Hassan Ramadan, MD; Chadi Makary, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the occurrence of chronic rhinosinusitis (CRS) in adult patients with head and neck cancers.

Objectives: To study the incidence and risk factors for CRS in adult patients with head and neck cancers. **Study Design:** Systematic review and meta-analysis. **Methods:** A systematic search of PubMed, Scopus, Web of Science, and Cochrane Central Register of Controlled Trials databases was performed from inception to May 2025 according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol. Studies that looked at the development of CRS following treatment of head and neck cancers were included. **Results:** Sixteen retrospective cohort studies representing a total of 1882 patients were pooled. There was significant heterogeneity in how CRS was diagnosed. The overall pooled incidence of CRS in all head and neck cancer patients was 35% (95% CI of 32% to 61%). The incidence was significantly higher in patients with nasopharyngeal cancer (NPC) (46% vs 18%, $p<0.001$). The maxillary sinuses were the most common sinuses involved with an incidence of 55% followed by the ethmoid sinuses at 50%. Radiation therapy was associated with higher risk of CRS (log OR=1.3, 95% CI of 0.37, 2.23) especially in patients with NPC (log OR=1.87, 95% CI of 0.68, 3.05). Qualitative review showed that concurrent chemotherapy also increased the risk of CRS. **Conclusions:** The presence of NPC, radiation therapy, and concurrent chemotherapy significantly increase the risk of CRS in patients with head and neck cancers. Clinicians should be aware of the risk when treating these patients.

3:59 Q&A

4:05 **Impact of Dupilumab on Healthcare Utilization for Patients with Chronic Rhinosinusitis with Nasal Polyps (CRSwNP)**

Albert Y. Li, BA Oluwatobiloba Ayo-Ajibola, BS; Tyler J. Gallagher, MD MPH; Matthew E. Lin, MD; Ido Badash, MD; Kevin Hur, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to explain the changes in healthcare utilization and cost-effectiveness associated with Dupilumab in CRSwNP and use this data to counsel patients on realistic treatment expectations.

Objectives: To evaluate real world healthcare utilization changes and cost-effectiveness associated with Dupilumab in adults with CRSwNP. **Study Design:** Retrospective propensity matched cohort study using a large multi-institutional electronic health record network. **Methods:** Adults with CRSwNP who began treatment with Dupilumab on or after June 16, 2019, were identified in the TriNetX Global Network. These patients were propensity score matched to Dupilumab naive CRSwNP patients on 33 demographic, clinical, medication, and utilization covariates. Outcomes of interest included systemic corticosteroid prescriptions, endoscopic sinus surgery, emergency department (ED) visits, inpatient admissions, outpatient visits, and antibiotic prescriptions. Kaplan-Meier survival plots were generated, and hazard ratios (HRs) were calculated for each variable. Incremental cost-effectiveness was calculated using annual direct care savings and a 0.50 QALY gain over five years based on available literature. **Results:** A total of 2,721 matched pairs of patients who received Dupilumab and Dupilumab-naive patients were included. Patients receiving Dupilumab had significantly reduced rates of systemic corticosteroid use (48.4% vs 53.8%; HR 0.79, $p=0.015$), endoscopic sinus surgery (45.8 vs 52.4%; HR 0.74, $p<0.001$), ED visits (15.7% vs 18.2%; HR 0.80, $p=0.001$), and inpatient admissions (8.7% vs 10.7%; HR 0.77, $p=0.002$) relative to matched controls. Reduced healthcare utilization translated to annual direct care savings of \$734 per patient. When offset against an annual drug cost of \$30,000, the incremental cost effectiveness ratio was \$58,532/QALY--below commonly accepted U.S. willingness to pay thresholds. **Conclusions:** The use of Dupilumab may be a relatively cost-effective option for reducing steroid use, surgical intervention, ED visits, and hospital admissions for patients with CRSwNP. However, the magnitudes of these reductions are small, which is essential to note when counseling patients on realistic treatment expectations. Further research is necessary to determine how these changes compare with surgical management of CRSwNP.

4:11 **Quality of Allergic Rhinitis Content Across Social Media Platforms**

Emily Kwon, BA Lucy Revercomb, BS; Alexandra Filipkowski, BA; Annie Xu, BS; Rachel Kaye, MD; Wayne Hsueh, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to increase their knowledge of how allergic rhinitis content is represented on social media platforms

Objectives: To assess the quality and engagement of allergic rhinitis related short form content in social media. **Study Design:** A search across TikTok, Instagram Reels, Facebook, and YouTube Shorts was conducted for allergic rhinitis related hashtags. **Methods:** Posts were categorized by content category, author, and popularity. Content was analyzed with the Patient Education Materials Assessment Tool for Audiovisual Material (PEMAT-AV) to assess understandability and Global Quality Score (GQS) to measure quality. Videos were independently assessed by two reviewers per platform; a third reviewer resolved discrepancies. **Results:** 480 videos were collected. Most (69.1%) were educational and authored by medical professionals (42.4%) or lay individuals (43.7%). YouTube had the greatest proportion of content from medical professionals (40.5%). Instagram scored highest for PEMAT understandability (72.0%) versus YouTube (70.9%), TikTok (61.1%), and Facebook (45.9%) ($P < 0.001$). YouTube scored highest for PEMAT actionability (55.6%) versus Instagram (48.2%), TikTok (45.3%), and Facebook (35.4%) ($P < 0.001$). YouTube had the highest average GQS (3.12) compared with Instagram (2.70), TikTok (2.21), and Facebook (2.09) ($P < 0.001$). On multivariable analysis, medical professionals were associated with greater GQS ($\hat{\rho}^2 = 0.70$) and greater PEMAT understandability ($\hat{\rho}^2 = 9.78$) (both $P < 0.001$). **Conclusions:** Among the platforms studied, Instagram and YouTube content just barely met the PEMAT understandability threshold ($\geq 70\%$). However, none of the platforms contained adequately actionable content. YouTube Shorts hosts the greatest proportion of medical professional content and the highest-quality content, though still only of intermediate quality.

4:17 Unique Patterns of Olfactory Loss in Aging Adults

Lauren A. Howser, MD Nicole Kloosterman, MD; Rodney Schlosser, MD

Educational Objective: Readers will gain an understanding of how olfactory dysfunction presents differently in patients with chronic rhinosinusitis (CRS) compared to those with age-related decline, even when overall severity is similar. By comparing threshold, discrimination, and identification domains, this study highlights distinct patterns of impairment and selective odorant vulnerabilities. This knowledge may inform more targeted diagnostic and therapeutic strategies, encouraging clinicians to consider etiology specific profiles when evaluating and managing patients with olfactory dysfunction.

Objectives: Olfactory dysfunction (OD) may arise from aging, chronic rhinosinusitis (CRS), or other etiologies. While composite scoring of various domains of psychophysical testing offers a standardized way to assess OD, little is known about how specific patterns of impairment differ across etiologies. This study compares two matched hyposmic groups to analyze disease specific trajectory of olfactory decline. **Study Design:** Cross sectional observational study comparing olfactory function across three groups: young normosmic controls, young hyposmic CRS patients, and elderly non-CRS hyposmic individuals. **Methods:** Participants were divided into three groups: young (less than 60 years) normosmic controls ($n = 154$), young hyposmic CRS patients ($n = 57$), and elderly (greater than 60 years) non-CRS hyposmics ($n = 95$). All subjects completed validated olfactory testing by measuring odor threshold (T), discrimination (D), and identification (I) (TDI) and individual odorant identification. **Results:** Elderly hyposmics were more likely to have abnormal identification (73%) compared to young CRS hyposmics (44%), $p < .001$. Younger CRS hyposmics were more likely to have abnormal threshold scores (88%) compared to elderly hyposmics (65%) but appeared to have some preservation of identification. Odorant-specific analysis revealed that orange and liquorice were missed more frequently in elderly hyposmics compared to young CRS hyposmics (88% vs 64% and 90% vs 65%, $p < 0.05$). **Conclusions:** Despite matching olfactory severity, young CRS hyposmics and elderly non-CRS hyposmics showed distinct patterns of impairment across threshold, discrimination, and identification domains. CRS and aging produce distinct olfactory loss patterns, even at similar severity levels. Young CRS patients may retain better ability to identify certain odors highlighting selective sparing even within the same severity category. When comparing hyposmic

groups, only a small number of specific odors were significantly different between groups.

4:23 Incidence of Acute, Recurrent Acute, and Chronic Rhinosinusitis in Patients with a History of Splenectomy

Bastien A. Valencia, MD; Ryan Goodman, BS (Presenter); Luv Amin, MD; Angela M. Donaldson, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the incidence of acute, recurrent acute, and chronic rhinosinusitis in patients with prior splenectomy.

Objectives: To determine the incidence of acute, recurrent acute, and chronic rhinosinusitis in patients with a history of splenectomy. **Study Design:** Retrospective cohort study. **Methods:** While splenectomy is known to increase susceptibility to infections by encapsulated organisms by impairing both innate and adaptive immunity, the incidence of post-splenectomy sinonasal conditions has not been described to date. To address this, records of all patients who underwent total splenectomy between January 2019 and June 2025 were reviewed. Patients with documented sinonasal complaints prior to splenectomy were excluded. Demographic and clinical data were extracted, and diagnoses of acute rhinosinusitis (AR), recurrent acute rhinosinusitis (RARS), and chronic rhinosinusitis (CRS) were recorded. Incidence rates were calculated and compared with estimates in the general population. **Results:** During the study period, 1,153 patients underwent total splenectomy. Among them, 76 were subsequently evaluated for sinonasal disease (mean age 57.6 SD 16.3 years, 54% female). Of the total splenectomy cohort, 61 (5.3%) were diagnosed with AR, 3 (0.26%) with RARS, and 12 (1.0%) with CRS, corresponding to annual incidences of 8.1, 0.4, and 1.6 per 1,000 patient years, respectively. **Conclusions:** Compared to general population rates, AR (6-15% annually), RARS (~0.03-0.04%), and CRS (~0.25% annually), the incidence of RARS and CRS was markedly elevated in asplenic patients, while AR incidence was comparable to general estimates but likely underdiagnosed. These findings highlight the need for heightened clinical vigilance in this high risk group.

4:29 Q&A

PANEL

4:35 - 5:25

Office Rhinology Procedures: What Works and How to Do It

Moderator: Ashutosh Kacker, MD FACS

Panelists: Stacey T. Gray, MD FACS; Edward D. McCoul, MD MPH FACS; Masayoshi Takashima, MD FACS

3:35 - 5:25

CONCURRENT SESSION D

LARYNGOLOGY & BRONCHOSOPHAGOLOGY

COQUINA SOUTH

PANEL

3:35 - 4:25

Presbyphagia

Moderator: Natasha Mirza, MD FACS

Panelists: Paul C. Bryson, MD FACS; Laura A. Matrka, MD; Melin Tan-Geller, MD

Moderator: C. Gaelyn Garrett, MD MMHC

4:25 2025 Triological Society Thesis with Distinction Award

RNA Sequencing Provides Insight into Idiopathic Subglottic Stenosis - Mursalin M. Anis, MD PhD

4:31 Vocal Fold Atrophy in an Alzheimer's Disease Rat Model

Stephen Leong, MD Carson S Miller, BS; Guzal Shukur, BS; Zaroug Jaleel, MD; Mahdi Al-Ghezi, BS; Neel K Bhatt, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe vocal fold atrophy in Alzheimer's disease and its potential contribution to voice and swallowing changes.

Objectives: Advanced Alzheimer's disease (AD) is associated with impaired voice, oropharyngeal dysphagia, and aspiration pneumonia. Vocal fold atrophy and incomplete glottal closure are hypothesized to be contributors to these voice and swallowing changes. While vocal fold atrophy is observed in AD, advanced age is co-prevalent and a confounding variable. The apolipoprotein E4 knock-in (ApoE4-KI) rat model is commonly used to study cognitive and motor changes in AD. This study aims to compare vocal fold atrophy in non-aged adult AD rats vs. age matched controls. **Study Design:** Vocal folds were visualized endoscopically in 4 month ApoE4-KI rats (n=12) and age-matched controls (n=8) following anesthesia. **Methods:** Laryngeal nerve and muscle samples were collected for axon and myofiber histology. Vocal fold bowing index (BI) was calculated from endoscopic still images by two blinded reviewers using digital software. Duplicate videos and correlation coefficients were used to calculate intra- and inter-rater reliability. **Results:** Endoscopic measures of vocal atrophy and nerve/muscle histology were obtained in all rats (n=20). The mean BI value was significantly higher in AD rats compared to controls (mean $\pm$ SD 10.7 $\pm$ 2.9 vs. 6.4 $\pm$ 2.6, difference 4.3 with 95% CI 1.6-6.9, p<0.01). BI scores between reviewers were moderately correlated (R=0.57, 95%CI -0.01-0.86) and intra-rater reliability was high. **Conclusions:** Non-aged AD rats had significantly higher BI than controls. These findings suggest that AD may lead to vocal fold atrophy independent of advanced age. The ApoE4-KI rodent model is associated with neurodegeneration and myelin deficits, though additional studies are needed to determine the mechanism for vocal fold atrophy in this model.

4:37 Impact of Frailty on Pharyngeal Manometric Measures of Swallowing

Guzal Shukur, BS Angelina Fitzgerald, CCC SLP; Stephen Leong, MD; Alice Cheng, MBA; William Z. Gao, MD; Neel K. Bhatt, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the relationship between frailty and pharyngeal manometric measures.

Objectives: Oropharyngeal dysphagia is commonly observed in frail individuals. High-resolution pharyngeal manometry (HRPM) is a clinical tool that can quantify different physiologic parameters of oropharyngeal swallowing biomechanics and strength. In this study, we investigated the relationship between frailty and pharyngeal manometric measures. We hypothesized that frailty is associated with reduced pharyngeal contractility. **Study Design:** Individuals who underwent HRPM were retrospectively reviewed. Exclusion criteria included history of head and neck cancer surgery or radiation. **Methods:** Pharyngeal contractile integral (PhCI), upper esophageal sphincter (UES) relaxation duration and UES residual pressure (UES-IRP) were collected for three different bolus conditions: dry swallow, 5-ml thin liquid, and 3-ml pudding. The modified frailty index-11 (mFI-11) score was used to quantify frailty. **Results:** Twenty-one individuals were included in the study, with a median age of 63 (range 39-82). The median mF-11 score was 2 (range: 0-8). There was a non-significant negative correlation between mF-11 score and PhCI dry, 5-ml liquid, and 3-ml pudding conditions (r=-0.28 [95% CI: -0.63--0.17] r=-0.07 [95% CI: -0.52--0.40] r=-0.22 [95% CI: -0.60--0.23], respectively). Severe frailty was associated with significantly decreased PhCI for pudding swallow compared to milder frailty (mean difference: -183.7 [95% CI: -336.0 -- -31.4, p=0.02]. There were no significant differences in PhCI for dry and thin liquid swallows. **Conclusions:** In individuals with more severe frailty, pharyngeal bolus drive was significantly reduced for thicker consistencies, but most HRPM measures were not impacted by increasing frailty. These findings suggest that pharyngeal strength may be preserved even among frail individuals with high frailty scores, based on mFI-11. Future studies may focus on the interplay between frailty, pharyngeal sensory dysfunction, and sarcopenia

that governs modulation of oropharyngeal swallowing function.

4:43 Amprenavir Rescue of Hypoxia Inducible Factor Mediated Cytokine Response to Nonacid Pepsin in Laryngeal Cells In Vitro

Pelin Ergun, PhD Tina L. Samuels, PhD; Nikki Johnston, PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how amprenavir modulates the inflammatory response in an in vitro model of nonacid laryngopharyngeal reflux.

Objectives: Pepsin is a key driver of epithelial injury and inflammation in laryngopharyngeal reflux (LPR). Prior work in esophageal cells implicates hypoxia inducible factor-2 α (HIF-2 α) in acidic bile mediated cytokine secretion. We investigated whether pepsin increases HIF-2 α under nonacidic (pH7) conditions in immortalized human true vocal cord epithelial cells (TVC) and whether amprenavir, a pepsin inhibitor, can rescue this response. Study Design: In vitro translational. Methods: TVCs were treated in triplicate with 0.1-1mg/mL pepsin and/or 10 μ amprenavir at pH7 for 2, 4, 6, and 24 hours followed by a 1 hour harvest. HIF-2 α protein levels were evaluated by Western blot and densitometry. Expression of proinflammatory genes at maximal HIF-2 α response was assessed with/without a HIF-2 α transcriptional inhibitor via qPCR. Student's t-test was used to compare group means. Results: Pepsin (pH7, 1 mg/ml, 6 hours) produced maximal increase in HIF-2 α (1.9-fold change, $p < 0.05$); rescue by amprenavir was not statistically significant ($p = 0.132$). Pepsin upregulated ICAM1, IL1B, IL8, and TNFA ($p < 0.05$); amprenavir rescued ICAM1, IL8, and TNFA ($p < 0.05$). Rescue by HIF-2 α pharmacologic inhibition was not statistically significant. Conclusions: Pepsin pH7 increased HIF-2 α and upregulated inflammatory cytokines in laryngeal cells. While amprenavir significantly reduced cytokine expression, HIF-2 α inhibition alone had modest effect, suggesting that additional pathways contribute to pepsin induced inflammation. The 6 hour peak in HIF-2 α and cytokines may reflect an early inflammatory phase, aligning with known biphasic IL-8 patterns. Amprenavir attenuation of this response supports its therapeutic potential for LPR.

4:49 Q&A

4:55 Prioritizing Laryngeal Surgery in Gender Affirming Care: A Single Institution Review

Michael Richard Xiang, BA MA Randy Bach, BA; Natasha Mirza, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the clinical importance and impact of laryngeal surgery within the broader context of multi-disciplinary gender affirming care

Objectives: To understand where laryngeal surgery falls in the priority of gender affirming surgeries (GAS) for transgender and gender diverse (TGD) patients, by analyzing (1) number and types of GAS pursued (2) chronological order of GAS pursued. Study Design: Retrospective chart review. Methods: A list of all patients, at least 18 years of age, undergoing laryngeal surgery from 01/01/2020 to 06/30/2025 for primary diagnosis of "gender dysphoria" was generated via the electronic health record. Patient charts were then reviewed for all GAS performed. Results: 72 patients with average (STD) age of 35(13) years old. 71 on hormone therapy; 44 receiving voice therapy. 54 underwent vocal feminization and 33 underwent chondrolaryngoplasty. 10 underwent vocal masculinization. On average (STD), patients underwent 2.54(1.45) GAS, consisting of 1.04(0.54) voice surgeries, 0.68(0.77) facial surgeries, 0.43(0.58) top surgeries, and 0.44(0.58) bottom surgeries. 21 pursued laryngeal surgery only. Among the 43 who underwent multiple GAS, 7 pursued laryngeal surgery before other GAS, 7 pursued laryngeal surgery between other GAS, and 29 pursued laryngeal surgery after all other GAS ($\chi^2 = 22.49$ with df 2, $P < 0.0001$). Conclusions: Laryngeal surgery is an important and under-utilized procedure for many TGD patients. Most patients pursue gender affirming laryngeal surgery last, after all other GAS. This highlights the importance of voice in one's gender expression and emphasizes the need for increased awareness of voice surgery as an effective option for gender dysphoria, especially considering

the many barriers to gender affirming laryngeal surgery (insurance limitations, scarcity of specialized surgeons, geographic disparities, etc.).

5:01 Automated Procedural Skill Assessment in Laryngology Using a Large Language Model: A Feasibility Study Using Gemini in Percutaneous Injection Laryngoplasty

Alex T. Cheng, BA Sean A. Setzen, MD; Alexandra Li, BS; Julianna Kostas, MD; Anais Rameau, MD MPhil MS

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the current accuracy and reliability of procedural performance assessments produced by multimodal commercial foundation models.

Objectives: Current procedural skill assessment methods with simulators are subjective and time intensive, posing challenges in objectively and efficiently assessing trainees in simulated procedures like Percutaneous Injection Laryngoplasty (PIL). We evaluate the feasibility of assessment automatization with a foundation model. **Study Design:** A methodological evaluation of a commercial foundation model's criterion validity and intra-rater reliability for simulated procedural skill assessment. **Methods:** Gemini 2.5 Pro, in a private institutional VertexAI enclave, was used to assess criterion validity of a PIL simulator based on 17 videos obtained from novices, residents, and attending laryngologists. Gemini 2.5 Pro was prompted to generate procedural narration and performance score with one-shot and few-shot strategies with example videos of poor, medium, and excellent simulated PIL performance. Procedural assessment accuracy was evaluated against a criterion gold standard. Model reliability was gauged with 30 repeated prompts for a set of three videos, one from each skill group. **Results:** Gemini 2.5 Pro demonstrated strong accuracy in providing time-stamped narration of the procedures. The model was able to accurately provide a performance score (1-3) for 41% (n=17) of the videos with one-shot prompting and 62% (n=13) of the videos with few-shot prompting. Gemini demonstrated modal ratings consistent with the ground truth in 47% (p<0.05) and 90% (p<0.001) of cases with one-shot and few-shot prompting, respectively. **Conclusions:** Multimodal commercial foundation models, such as Gemini 2.5 Pro, may be prompted to perform simulated procedural skill assessment in otolaryngology with moderate accuracy and excellent reliability. A few-shot approach improves both accuracy and reliability of the assessments. Future studies may compare accuracy and reliability of automated procedural assessments to that of experts.

5:07 The Neighborhood Socioeconomic Deprivation and Patient Reported Questionnaire

Sandra Stinnett, MD; Shirley X. Liu, MS (Presenter); Libby J. Smith, DO; Chloe Santa Maria, MD; Katie M. Carlson, MS

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the link between neighborhood deprivation and patient related outcomes in subjective voice and reflux symptoms and understand the impact of ADI quartiles on subjective laryngeal symptom burden.

Objectives: The Voice Handicap Index-10 (VHI-10) and Reflux Symptoms Index (RSI) are validated, patient reported outcome measures (PROMs) commonly used in laryngology to assess the subjective impact of voice disorders and severity of symptoms associated with laryngopharyngeal reflux, respectively. This study aims to evaluate the relationship between neighborhood-level socioeconomic disadvantage, as measured by the Area Deprivation Index (ADI), and patient-reported laryngeal outcomes. **Study Design:** Cross Sectional Study with Multivariable Analysis. **Methods:** A cross-sectional analysis of 1310 adult patients who were referred to a tertiary care laryngology clinic between January and December 2024 was conducted. Patient addresses were geocoded and matched to corresponding ADI national percentile scores, and internally derived ADI quartiles were formed. Median VHI-10 and RSI scores by ADI quartile were compared using the Mann-Whitney U test. Multivariable linear regression was performed to investigate the association between ADI and VHI-10 or RSI scores, adjusting for sociodemographic (race, sex, and age) and clinical (comorbidities, depression/anxiety, insurance status, BMI, and primary diagnosis) factors. **Results:** Patients living in the least deprived ADI quartile had significantly lower median VHI-10 and RSI scores, compared to

patients in the most deprived ADI quartile (10 vs 14, and 15 vs 20, respectively). In adjusted analysis, living in a higher ADI area was significantly associated with a higher VHI-10 ($\beta=0.059$, 95% confidence interval [CI]: 0.029-0.088) or RSI ($\beta=0.040$, 95% CI: 0.012-0.068) score. Conclusions: Higher neighborhood socioeconomic deprivation is significantly associated with higher VHI-10 and RSI scores. Patients living in more deprived areas may face barriers to accessing care, including low health literacy and limited resources. This may contribute to worse subjective symptomatology upon presentation, highlighting the need for targeted interventions to improve access.

5:13 Defining Persistent and Recurrent Dysphagia in Zenker's Diverticulum: A POuCH Study

Ari D. Schuman, MD MSCR Meredith Tabangin, MPH; Mekibib Altaye, PhD; Gregory Postma, MD; Rebecca J. Howell, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe patients at risk of persistent and recurrent swallowing abnormality after surgery for cricopharyngeal muscle dysfunction (CPMD) with or without Zenker's diverticula (ZD).

Objectives: To define persistent and recurrent dysphagia after surgery for CPMD with and without diverticula. **Study Design:** Prospective multi-institutional longitudinal cohort study. **Methods:** Patients with CPMD with and without diverticula enrolled in the Prospective Outcomes of Cricopharyngeal Hypertonicity (POuCH) study who underwent surgery from November 2014 to August 2024 with at least 12 months of followup were included. Surgical outcomes were evaluated using a validated patient reported dysphagia marker, Eating Assessment Tool 10 (EAT10), where normal is characterized as ≤ 3 . Persistent dysphagia is defined as patients with ≥ 3 at first followup. Recurrent dysphagia is an initial surgical responder with a delayed worsening in EAT-10 scores during followup. **Results:** 160 patients were included. Twenty-three patients (14.3%) had persistent dysphagia post-operatively, with 7 undergoing repeat surgery. Preoperative EAT-10 scores were higher in the persistent group (median 23.5, interquartile interval (IQR) 12.0-28.5) compared to responders (14.0, 8-24) ($p=0.05$). Median first postoperative EAT-10 in the persistent dysphagia group was 14 (IQR 8-21) compared to 0 (0-2; $p<0.0001$). There was no difference in esophageal pathology. There was no difference in rates of response to endoscopic versus open surgery. There were six patients with recurrent dysphagia, which occurred greater than 3 months postoperatively. Two of these had repeat surgery. **Conclusions:** Patients with recurrent dysphagia are less common than persistent dysphagia, and there are no clear markers to predict surgical responders from persistent dysphagia (e.g. non-responders).

5:19 Q&A

5:25 Adjourn

5:30 - 7:00 Vice Presidents' Welcome Reception - Porte Cochere

7:00 - 9:00 VIP Dinner (by Invitation only)

FRIDAY, JANUARY 23, 2026

6:30 - 7:30 Precigen Symposium - Mediterranean 7-8

6:30 - 7:30 Business Meetings (Triological Fellows Only)
Southern Section - Del Lago 1-2
Western Sections - Del Lago 3-4

7:00 - 7:30 Breakfast for all attendees

PANELS

7:35 - 8:35 TRIO Best Practices Panel

Moderator: Daniel I. Choo, MD FACS

Panelists:

Do Aspirin and Antiplatelets Need to Be Held for Most Otolaryngologic/Head and Neck Surgery?

Richard V. Smith, MD FACS

What Is the Best Surgical Technique to Manage Zenker's Diverticula?

Samir S. Khariwala, MD

Is Cognitive Behavioral Therapy Effective for Tinnitus?

Joshua J. Sturm, MD

Is Ophthalmology Consult Needed for Acute Orbital Fractures?

Stephen S. Park, MD

Should All Patients with Recurrent Respiratory Papillomatosis Be Vaccinated for HPV?

Phillip C. Song, MD

8:35 - 9:15 Pediatric and Adult Airway Pitfalls and Pearls for the General Otolaryngologist

Moderator: Yash J. Patil, MD FACS

Panelists: James A. Burns, MD FACS; Alessandro de Alarcon, MD MPH; Lyndsay L. Madden, DO FACS

9:15 - 11:00

CONCURRENT SESSION E

FACIAL PLASTIC AND RECONSTRUCTIVE SURGERY

MEDITERRANEAN 7-8

Moderator: Lamont R. Jones, MD MBA FACS

9:15 Antibiotic Guidelines for Pediatric Facial Trauma: A Five Year Retrospective Analysis

Jacob Lamar, BS Aamr Hasanjee, MD; Mark Mims, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the relationship between current antibiotic prescribing patterns in pediatric facial fractures and the associated infection outcomes, ultimately to understand forthcoming evidence based recommendations for antibiotic stewardship.

Objectives: To evaluate current antibiotic prescribing patterns in pediatric facial fractures and correlate them with infection outcomes to develop evidence based recommendations for antibiotic stewardship. **Study Design:** Retrospective chart review at a single level 1 trauma center. **Methods:** Pediatric patients under 18 years who presented via trauma activation with facial fractures to our hospital system within the past five years were identified through a data warehouse. Data collection included fracture location and type, associated injuries, antibiotic administration patterns (type, dose, duration, timing), surgical interventions, and clinical outcomes. Primary endpoint was development of post-traumatic infection. Secondary endpoints included antibiotic related complications, need for reoperation, and poor fracture healing. Data was stored in a secure database with patient de-identification during analysis. Statistical analysis included descriptive statistics, chi-square tests for categorical variables, and multivariable logistic regression to identify factors independently associated with infection development. **Results:** Data collection is pending at this time. Upon completion, analysis will characterize antibiotic usage patterns across different fracture types and identify patient and injury factors associated with infection development. Current literature suggests significant variability in prescribing practices with limited evidence based guidance specific to pediatric populations, with approximately 60% increase in antibiotic prescriptions for pediatric facial fractures between 2003 and 2021 despite limited supporting evidence. **Conclusions:** This study addresses the gap in institution specific guidelines for antibiotic use in pediatric facial trauma. The findings will shape evidence based antibiotic stewardship protocols to optimize patient care while reducing unnecessary antimicrobial exposure and potential contribution to antibiotic

resistance.

9:21 Impact of an Evidence Based Emergency Department Order Set on the Clinical Management of Bell's Palsy

Joyce H. Lee, BA Derek Vos, MD; Margaret Parkhurst, MD; Sara Liu, MD; Dane Genther, MD; Peter Ciolek, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to evaluate how the implementation of a Bell's palsy order set in accordance with AAO-HNSF Clinical Practice Guidelines may enhance the quality of care in an emergency department setting.

Objectives: To assess the impact of an evidence based emergency department (ED) order set on the clinical management of patients presenting with Bell's palsy. **Study Design:** Retrospective cohort study. **Methods:** This study included adult patients diagnosed with Bell's palsy in the ED before and after the institution of a new order set, which mirrors the AAO-HNSF Clinical Practice Guidelines. Data were extracted on demographics, steroid and antiviral prescribing, eye protection, and referrals and analyzed using descriptive statistics. **Results:** Two cohorts of patients diagnosed with Bell's palsy in the ED were compared: those managed prior to the institution of the order set (n = 27, April 2020 to August 2023) and those managed under the new order set (n = 14, September 2023 to January 2025). Demographics were similar across cohorts, with a slight increase in median age in the order set group (51.5 vs. 50 years). Use of a tapering steroid regimen increased with the order set (79% vs. 0%). Eye protection was provided to 100% of patients in the order set group compared to 85% prior. Antiviral prescribing rates were similarly high (93%) in both groups. Referrals to otolaryngology increased to 86% with the order set compared to 0% prior. **Conclusions:** Implementation of an order set in accordance with the AAO-HNSF Clinical Practice Guidelines on Bell's palsy improved adherence to best practices, particularly regarding steroid tapers, eye protection, and referral to otolaryngology. These findings suggest that structured ED order sets may enhance the quality and consistency of Bell's palsy care.

9:27 Smile Outcomes of Neural Facial Reanimation Following Radical Parotidectomy

Nicole Janet Reynoso, BS Spencer Stephen Souza, MD; Andrea M. Park, MD; Rahul Seth, MD; William R. Ryan, MD; Phillip Daniel Knott, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to characterize smile outcomes following neural based facial reanimation in patients undergoing radical parotidectomy for malignancy, using quantitative image analysis.

Objectives: To evaluate changes in smile function following neural facial nerve reconstruction in oncologic parotidectomy patients, and to assess differences based on reconstructive technique and radiation exposure. **Study Design:** Retrospective cohort study. **Methods:** Patients undergoing facial reanimation after radical parotidectomy for malignancy were identified. Standardized pre and postoperative facial photographs were analyzed using Emotrics, a validated tool for automated facial landmark tracking. Commissure excursion (CE) at rest and during smile was measured. The primary outcome was change in smile excursion (Δ CE = post-op -- pre-op). Subgroup comparisons were made by use of masseteric-to-facial (5-7) nerve transfer, cable grafting, and adjuvant or neoadjuvant radiation. **Results:** In the initial cohort (n = 27), mean Δ CE was +2.7 mm (SD 10.3 mm). Patients receiving cable grafts showed notably reduced improvement (-0.4 mm vs. +19.5 mm). Adjuvant radiation was associated with diminished recovery (+0.8 mm vs. +9.9 mm), while neoadjuvant radiation correlated with improved outcomes (+8.2 mm vs. +0.8 mm). Outcomes after 5-7 nerve transfer demonstrated improved CE; however, further data are needed to clarify its impact in this oncologic context. **Conclusions:** Smile recovery after oncologic parotidectomy remains largely unquantified. These findings reveal clinically relevant trends and underscore the need for expanded analysis to guide reconstruction in cancer related facial nerve sacrifice and neural based facial reanimation.

9:33 Rates of Postoperative Infection After Rhinoplasty with Cadaveric vs. Autologous Costal Cartilage Grafting

Lillian W. Dattilo, MD Leillani Ha, BS; Robin W. Lindsay, MD MBA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand infection risks associated with autologous vs. cadaveric costal cartilage grafting used in rhinoplasty, as well as the role (or lack thereof) for prophylactic antibiotics.

Objectives: To determine if postoperative infection rates after septorhinoplasty differ based on use of autologous vs. cadaveric costal cartilage grafting in a large cohort. **Study Design:** Retrospective cohort study. **Methods:** Patients undergoing cosmetic or functional rhinoplasty or nasal valve repair with costal cartilage grafting during the years 2002 - 2025 were identified from the electronic medical record of a large healthcare system. Patients were separated into those who underwent autologous vs. cadaveric cartilage grafting. Demographic data, rates of postoperative antibiotic prescription between postoperative day three and 30, and rates of return to OR for revision within the first 30 postoperative days were compared between groups. **Results:** A total of 726 patients who underwent rhinoplasty with costal cartilage grafting were identified; 430 underwent autologous rib grafting (54.0% female; mean age 48.0 years) and 296 cadaveric costal cartilage grafting (52.7% female, mean age 51.5 years). Concern for or accrual of infection was measured in terms of postoperative antibiotic prescription between postoperative day 3 and postoperative day 30; this did not significantly differ between the autologous and cadaveric rib groups (3.66% vs. 5.66%, $p=0.215$ for oral antibiotics and 0.0% vs. 0.63%, $p=0.097$ for IV antibiotics). One patient in the cadaveric group and zero patients in the autologous group (0.34% vs. 0%, $p=0.37$) returned to the operating room for washout within the first 30 postoperative days. Receipt of prophylactic postoperative day zero antibiotics (5.1% autologous and 7.7% cadaveric) was not associated with decreased infection rates. **Conclusions:** Postoperative infection rates after rhinoplasty, as measured by postoperative antibiotic prescription postoperative day 3 through 30 or return to the operating room, did not significantly differ between patients undergoing cadaveric vs. autologous costal cartilage grafting.

9:39 Q&A

9:43 The Nefertiti Lift: Split Face Study Evaluating the Efficacy of Botulinum Toxin for Lower Face Rejuvenation

Lucy Liu, MD Alison Hawkins, BS; Srivatsa Vasudevan, MD; David Rengifo, MD; Rodrigo Martinez Monedero, MD

Educational Objective: To evaluate the efficacy of botulinum toxin injections to the platysma for lower face rejuvenation and to reassess the role of the Nefertiti lift in nonsurgical jawline contouring.

Objectives: To objectively and subjectively assess the cosmetic benefit of the Nefertiti lift, specifically evaluating improvement in jowling and platysmal banding following unilateral botulinum toxin injection to the lower face. **Study Design:** Prospective, split face, single blinded pilot study. **Methods:** Twenty adult participants with early signs of lower face aging but not surgical candidates were enrolled. Each received 20-30 units of botulinum toxin (onabotulinumtoxinA) to one side of the jawline and neck. Standardized photographs were taken at baseline and at 2 week followup. Two blinded facial plastic surgeons independently evaluated jowling severity using the McCollough Facial Rejuvenation System (0-4 scale) and platysmal banding using a validated platysmal band grading scale (0-4 scale). Subjects also completed self-assessment satisfaction surveys. Primary endpoints included evaluator-graded changes in jowling and platysmal bands, and patient reported outcomes. **Results:** All 20 participants completed the study protocol. Blinded evaluator assessments demonstrated no statistically significant improvement in jowling on the injected side compared to the control (mean change: 0.15 ± 0.5 ; $p = 0.18$, Wilcoxon signed rank test). However, there was a statistically significant reduction in platysmal banding (mean change: 0.85 ± 0.6 ; $p = 0.003$). On

subjective survey, only 10% (2 of 20) of participants reported noticeable improvement in jowling on the treated side. Two participants experienced transient asymmetry of the lips when smiling, which resolved without intervention. No serious complications or long-term effects were reported. Conclusions: Short-term application of the Nefertiti lift may be insufficient to produce visible improvement in jawline contour or patient satisfaction. While platysmal banding may improve, further studies are warranted to assess whether chronic chemodenervation provides long-term preventative benefit in jowl progression.

9:49 Post-Facelift Management Patterns: A Comprehensive National Survey of Facial Plastic Surgeons

Lucy Liu, MD Emily Johnson, BS; Srivatsa Vasudevan, MD; Paige Bundrick, MD; Karuna Dewan, MD

Educational Objective: To evaluate national practice patterns in postoperative facelift care among facial plastic surgeons and identify areas of consensus and variability to guide future research and standardization.

Objectives: At the end of this presentation participants will be able to characterize current trends in postoperative management following deep plane facelift surgery among practicing facial plastic surgeons, with an emphasis on postoperative adjuncts and recovery protocols. Study Design: Cross-sectional national survey. Methods: An IRB exempt, anonymous 10 question survey was distributed to American Academy of Facial Plastic and Reconstructive Surgery members between April and May 2025. Questions addressed drain usage, compression duration, adjunctive therapies, and postoperative skin treatments. Descriptive statistics were used to analyze response patterns. Results: A total of 160 board certified facial plastic surgeons completed the survey. Most respondents (81.3%) were in private practice, 12.5% were affiliated with university hospitals, and the majority had over 15 years of experience. Half of the surgeons reported placing surgical drains, most commonly for one day (19.5%). Compression garments were used by 83.8%, typically for over one week. Cold compresses were recommended by 53.8% for 2-3 days, and 51.9% advised gentle massage. A majority recommended supplements (81.9%) and silicone-based products (53.1%). Notably, 78.1% of respondents did not recommend early postoperative skin treatments such as laser, radiofrequency, or microneedling. Corticosteroids were prescribed by only 36.3%. Conclusions: Postoperative facelift care practices vary widely among facial plastic surgeons. While trends are emerging in areas such as skin therapy and supplement use, significant variation remains regarding drains, compression, and corticosteroid use. These findings highlight the need for future outcomes-based research to inform standardized, evidence-based guidelines.

9:55 Evaluating the Impact of Otolaryngology Analgesia Guidelines on the Opioid Prescribing Trend for Facial Local Flap Reconstruction

Robert E. Africa, MD Sudhanvan Iyer, BS; Amber M. Dunmire, MD; Shahrukh R. Ali, MD; Viran J. Ranasinghe, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the trends of opioids prescription for facial local flap reconstruction at a national level in relation to the publication of the American Academy of Otolaryngology-Head and Neck Surgery Clinical Practice Guidelines on Opioid Prescribing for Analgesia and relate them to their own practice.

Objectives: To evaluate the trends in opioid and non-opioid prescribing for facial local flap reconstruction in relation to the publication of guidelines by the American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS) in April 2021. Study Design: Retrospective cohort study with de-identified data from the United States. Methods: De-identified patient data were extracted from the TriNetX database, including individuals who received either opioid or non-opioid analgesics within 1-5 days following facial local flap reconstruction between January 1, 2013, and December 31, 2024. Prescribing trends were analyzed using interrupted time series analysis in Statistical Analysis System (SAS) version 9.4, with statistical significance defined as $p < 0.05$ to compare patterns in relation to the implementation of new opioid prescribing guidelines. Results: There was an initial significant increase in the percentage of patients prescribed opioid medication by 6.23% following the publication of the guidelines ($p <$

0.0001). Following the initial period after the guideline publication, the trend reversed with a significant sustained decrease by 0.12% ($p = 0.02$). For nonopioid medication, there was an immediate significant increase in non-opioid prescribing by 2.75% ($p < 0.0001$), and a sustained increase by 0.23% afterwards ($p = 0.02$). Conclusions: There were observed significant decreases in opioid prescription after the guideline publication with significant increases in non-opioid prescribing. This may suggest a reversal in the postoperative prescribing behavior favoring non-opioid medication rather than opioid analgesia.

10:01 Comparative Utility of the Risk Analysis Index and Modified Frailty Index-5 in Predicting Outcomes Following Facial Fracture Surgery

Akshay Warrier, BS Ariana Shaari, MD; Rushikesh Pande, BA; Christian Bowers, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the comparative predictive value of the Risk Analysis Index (RAI) and Modified Frailty Index-5 (mFI-5) in forecasting postoperative outcomes following facial fracture repair.

Objectives: To evaluate and compare the performance of RAI and mFI-5 in identifying patients at risk for complications after facial fracture surgery. **Study Design:** Retrospective cohort study. **Methods:** Patients undergoing facial fracture repair were identified in the 2005–2020 ACS NSQIP database. Frailty was quantified using RAI and mFI-5 and categorized for analysis. Multivariate logistic regression was used to examine associations between frailty and Clavien-Dindo (CD) complications, discharge disposition, and wound dehiscence. Demographic differences across frailty categories were assessed with chi-square testing. **Results:** Among 1,836 patients, both RAI and mFI-5 were significant predictors of CD II complications and non-home discharge, with RAI demonstrating higher odds ratios than RAI and age for CD II (RAI OR 3.26, 95% CI 1.03-10.28, $p=0.044$; mFI OR 2.39, 95% CI 1.06-5.38, $p=0.035$; age OR 1.06, 95% CI 1.04-1.08, $p<0.001$) and non-home discharge (RAI OR 6.12, 95% CI 2.36-15.90, $p<0.001$; mFI OR 4.49, 95% CI 2.29-8.79, $p<0.001$; age OR 1.08, 95% CI 1.06-1.10, $p<0.001$). RAI was additionally associated with wound dehiscence (OR 5.12, 95% CI 1.28-20.59, $p=0.021$), while mFI-5 uniquely predicted CD IV complications (OR 4.33, 95% CI 1.24-15.12, $p=0.022$). **Conclusions:** Both RAI and mFI-5 are effective tools for risk stratification in facial fracture repair, but RAI demonstrated stronger associations with moderate complications, wound dehiscence, and non-home discharge compared to mFI-5 and age. These findings support the utility of RAI for preoperative planning and perioperative optimization in facial trauma patients.

10:07 Q&A

PANEL

10:10 - 11:00

Management of the Eye in Patients with Facial Paralysis

Moderator: J. Madison Clark, MD FACS

Panelists: Deanna C. Menapace, MD; Daniel E. Rubinstein, MD; Taha Z. Shipchandler, MD; Sherard A. Tatum III, MD FACS

11:00 - 11:20 Break - Visit Exhibits and Posters - Coquina North

9:15 - 11:00

CONCURRENT SESSION F GENERAL AND SLEEP MEDICINE COQUINA SOUTH

PANEL

9:15 - 10:05

Neurostimulation for Sleep Patients: Tips for Success in the General Otolaryngology Practice

Moderator: Erica R. Thaler, MD FACS

Panelists: Reena Dhanda Patil, MD MBA; Megan L. Durr, MD FACS; Maria V. Suurna, MD FACS

10:05 2025 Triological Society Thesis with Distinction Award

Gender and Academic Rank Disparities in Electronic Health Record Burden in Otolaryngologists from 46 Academic Institutions - John P. Giliberto, MD

10:11 Examination of Complement Increases in Otolaryngology Residencies: A National Workforce Analysis

Hunter Huff-Towle, MD Anna Denman, BS; Molly Schieber, PhD; Kaeli Samson, MPH; Katie Geelan-Hansen, MD

Educational Objective: At the conclusion of this presentation, the participants should have gained an understanding of the career choices graduates from newly created otolaryngology residencies or expanded residency programs.

Objectives: To understand the graduates from newly accredited and expanded residency programs career plans; To understand if graduates from newly accredited and expanded residency programs choice careers in the region they trained; to understand the expansion of complement and the impact on career choices. **Study Design:** Retrospective cross-sectional. **Methods:** Programs with increased complement or new accreditation from 2008 to 2018 were identified through NRMP data. The year of complement increase for existing programs with increase was determined and used to create a pre and post increase population of graduates for comparison. Graduate fellowship status, current practice type, and geographic location were determined using public alumni records and online searches. Census region and NCHS urban-rural county classifications were used to analyze trends in practice location. Chi-square tests were used for comparisons. **Results:** Among 1,089 graduates, 61.7% pursued fellowship, with similar rates from new (60.5%) and expanded (63.0%) programs ($p = 0.73$). Facial Plastic Reconstructive Surgery (27.2%) and Head and Neck Oncology (21.0%) were the most pursued fellowships. Those physicians currently working in academic medicine, those who did not have a fellowship (i.e., comprehensive otolaryngologists) were significantly more likely to practice in the same state as their residency training (54.9%), relative to those who did have a fellowship (33.3%), $p = 0.003$. Geographic retention varied: 72.0% of graduates in the West stayed in-region, compared to just 45.1% in the Northeast. A majority of otolaryngologists practice in counties of greater than 1 million people (65.7%). There were no significant changes in geographic trends or county size when comparing graduates before and after complement increases occur. **Conclusions:** Of graduates from new otolaryngology programs or those that increased resident complement, fellowship interest remains steady with well over half of graduates pursuing a fellowship. Geographic retention varies based on the state and region of the residency training program, however, these trends don't change significantly after a complement increase occurs. A majority of otolaryngologists work in communities of greater than 1 million people, a trend which also didn't change significantly after a complement increase occurs. These findings reflect previously unknown trends in workforce development amongst a unique subset of physicians graduating from otolaryngology residency that are newly accredited or from a program that expanded. Understanding the path from training to practice in those programs that have increased the number of otolaryngologists is important in evaluation of the otolaryngology work force distribution.

10:17 Pressure to Publish: Impact of Step 1 Pass/Fail and NIH Funding on Research Output of Matched Otolaryngology Applicants

Asim Ahmed, BS Arjun Bhatt, BS; Ali Abolhassani, BS; Jack McClain, BS; Shervin Eskandari, BS

Educational Objective: At the conclusion of this presentation, the participants should be able to evaluate how the

USMLE Step 1 pass/fail transition impacted research productivity among matched otolaryngology applicants and describe the influence of institutional NIH funding on total, first-author, and in-specialty publication output.

Objectives: To assess the impact of the USMLE Step 1 transition to pass/fail scoring on the research productivity of matched Otolaryngology--Head and Neck Surgery (OTO-HNS) applicants, and to evaluate how home institution NIH funding levels influence publication output. **Study Design:** Retrospective observational study **Methods:** A retrospective observational study was conducted on PGY1 (post transition) and PGY5 (pre transition) residents at ACGME accredited OTO-HNS programs. Residents were identified through online rosters, and PubMed indexed publications prior to July of their PGY1 year were collected. Research output was categorized by authorship status, specialty relevance, and publication type. Residents' home institutions were categorized by NIH funding tiers. Mann-Whitney U tests and negative binomial regression were performed. **Results:** A total of 624 residents were included (323 pre transition, 301 post transition). While median publication counts were similar, negative binomial regression revealed that the post transition cohort produced 27.4% more total publications (IRR 1.274, $p = 0.008$) but showed no significant difference in first author or in-specialty manuscripts. Attendance at a high NIH-funded institution was independently associated with increased publication output across all categories: total (68.9%), first-author (114%), and in-specialty (63.9%) (all $p < 0.001$). **Conclusions:** The Step 1 transition to pass/fail was associated with increased total PubMed indexed research output, but not with increased first author or in-specialty publications. Institutional NIH funding strongly predicted higher research productivity. These findings highlight the role of institutional infrastructure in shaping applicant competitiveness in the post Step 1 score era.

10:23 Artificial Intelligence in Otolaryngology Education: Current Applications and Future Directions

Matthew Shneyderman, BA Jared Zhao, BS; Ellie Thompson, MD PhD; Emily Joseph, MLIS MM; Jonathan Walsh, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how artificial intelligence (AI) can be harnessed within otolaryngology residency programs for surgical training, competency assessments, resident selection, and clinical acumen development.

Objectives: This scoping review explores the utility of artificial intelligence (AI) within Otolaryngology residency programs for surgical training, competency assessments, resident selection, and clinical acumen development. **Study Design:** Scoping review. **Methods:** A PRISMA systematic search was performed across three online databases (Embase, Scopus, and PubMed) up to June 2025 using key words related to AI, education, and otolaryngology. Two authors independently reviewed all abstracts and full texts from this search. All authors contributed to resolve discrepancies. Exclusion criteria included opinion letters, publications in a language other than English, and conference presentations. **Results:** Of 1310 initial abstracts screened, 15 studies met inclusion criteria. Five (5/15) explored AI using deep learning to track surgical instruments in real-time and give automated feedback. Three (3/15) demonstrated integration of AI with 3D printing, Virtual Reality (VR), and Augmented Reality (AR) to enhance surgical education. One study explored using ChatGPT as an educational tool in ENT training, finding it valuable for creating practice clinical scenarios and summarizing complex information. Two (2/15) used machine learning models to classify meaningful information from letters of recommendation to predict applicant interview invitations (1/15), as well as generate novel research ideas in the field (2/15). Two (2/15) developed novel AI-guided instruments to help train novices in flexible laryngoscopy and intubation. Two (2/15) integrated the use of AI with robotic surgery. **Conclusions:** This scoping review identified present and future applications of AI technology for otolaryngology residency programs. Educational and administrative applications of AI have potential to improve program functionality and resident preparedness for practice.

10:30 Q&A

10:33 Cardiopulmonary Outcomes Following Surgical vs. CPAP Treatment in Obstructive Sleep Apnea: A

Retrospective TriNetX Study

Sharwani Kota, BS Sandhya Ganesan, BS; Lwam Asfaw, BS; Punam Thakkar, MD; Cody Smith, MD

Educational Objective: At the conclusion of this study, participants should be able to recognize the long-term cardiopulmonary risks associated with obstructive sleep apnea (OSA) and understand how different treatment modalities -- specifically CPAP versus surgical intervention - (tonsillectomy & adenoidectomy, uvulopalatopharyngoplasty), bony (maxillomandibular advancement, hyoid myotomy), and hypoglossal nerve stimulation (HNS) -- impact these outcomes. They should also be able to identify which surgical approaches are associated with the most favorable cardiovascular and pulmonary profiles and apply this knowledge to guide treatment planning for patients with OSA.

Objectives: To compare the incidence of cardiovascular and pulmonary sequelae in OSA patients treated with surgery -- soft tissue (tonsillectomy, adenoidectomy, UPPP), bony (MMA, hyoid myotomy), and hypoglossal nerve stimulation (HNS) -- versus CPAP. **Study Design:** Retrospective database study. **Methods:** A retrospective study was conducted using the TriNetX Research Network. Adult patients diagnosed with OSA were identified using ICD-10 and CPT codes and stratified into treatment cohorts: CPAP versus surgery. Cardiovascular and pulmonary complication rates were evaluated at short-term and 5 year intervals. Analyses were controlled for demographics and comorbidities. **Results:** Surgical management of OSA is associated with significantly lower long-term cardiovascular sequelae compared to CPAP (RR = 0.81, 95% CI: [0.78, 0.84]), after controlling for age, sex, and preexisting cardiac, metabolic/endocrine, respiratory conditions, and tobacco use. This trend is consistent across soft tissue (RR = 0.83), bony (RR = 0.79), and HNS (RR = 0.77) subgroups. Pulmonary outcomes similarly favored surgical intervention at 5 years (RR = 0.85, 95% CI: [0.82, 0.88]). Notably, HNS therapy demonstrated the most favorable profile for both cardiopulmonary endpoints. Short-term complications were comparable between groups. **Conclusions:** OSA affects 2-7% of adults and is characterized by recurrent airway collapse during sleep, contributing to cardiopulmonary sequelae such as systemic/pulmonary hypertension, ischemic heart disease, heart failure, and arrhythmias. While CPAP remains first line therapy, surgical alternatives are increasingly utilized. Surgical treatment, particularly HNS, may offer better long-term cardiopulmonary outcomes. These findings support consideration of surgical options in appropriate patients and highlight the need for better assessment of long-term health risks.

10:39 Hypoglossal Nerve Stimulation Levels and Outcomes in Comorbid Insomnia with OSA

Pearl Doan, BS Megan Durr, MD; Jolie L. Chang, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss differences in hypoglossal nerve stimulation voltage therapeutic requirements among obstructive sleep apnea patients with and without comorbid insomnia.

Objectives: To evaluate whether comorbid insomnia with OSA (COMISA) influences therapeutic outcomes and stimulation levels in hypoglossal nerve stimulation for obstructive sleep apnea (OSA). **Study Design:** A retrospective chart review was conducted among OSA patients who underwent hypoglossal nerve stimulation (HNS) surgery. **Methods:** Insomnia was defined as an insomnia index score above 15 or patient reported sleep latency exceeding 30 minutes. Functional threshold, defined as the minimum HNS voltage inducing tongue movement at activation, sleep study results, and therapeutic stimulation level, defined as the HNS voltage evaluated in postop titration, polysomnography, and at-home sleep studies up to July 30, 2025, were collected. **Results:** In a cohort of 106 HNS treated OSA patients, 41.3% (N=43) were classified as having COMISA. Compared to 53.5% (N=23) of COMISA patients, 72.1% (N=44) of non-insomnia patients achieved an AHI reduction greater than or equal to 50% (p= 0.048). Modified Sher's criteria (greater than 50% reduction and AHI less than 20 events per hour) was met in 51.2% (N=22) COMISA patients vs. 68.9% (N= 42) non-insomnia patients (p = 0.23). Mean therapeutic stimulation level in COMISA patients was lower (1.45 volts) than non-insomnia patients (1.71 volts) (p= 0.012). Mean change in voltage was lower in COMISA patients (7.8 level changes, 1 level = 0.1V) than non-insomnia patients (10.8 levels, p= 0.02). **Conclusions:**

COMISA patients were less likely to achieve 50% reduction in AHI with HNS therapy. COMISA patients had lower therapeutic stimulation levels and fewer levels of up-titration suggesting higher stimulation levels were either not needed or not tolerated in those with COMISA.

10:45 The Impact of Hypoglossal Nerve Stimulation Functional and Therapeutic Stimulation Levels on AHI Percentage Reduction

Pearl Doan, BS Megan Durr, MD; Jolie L. Chang, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to delineate hypoglossal nerve stimulation voltage thresholds and patient characteristics that are correlated with AHI percentage reduction.

Objectives: To evaluate which factors are associated with apnea hypopnea index (AHI) percentage reduction among patients with obstructive sleep apnea who are treated with hypoglossal nerve stimulation (HNS) surgery. **Study Design:** A retrospective chart review was conducted on patients who underwent HNS surgery. **Methods:** Age, BMI, sex, preoperative AHI, and postoperative AHI from postop sleep studies were collected. Functional threshold, defined as the minimum HNS voltage associated with tongue movement at activation, and therapeutic stimulation level, defined as the HNS voltage examined in post-op sleep studies were collected. Univariate and multiple linear regression analysis were conducted in RStudio. **Results:** In a cohort of 92 HNS treated OSA patients, the average percent AHI reduction was 65.0%, with 68 (73.1%) achieving greater than or equal to 50% AHI reduction with HNS and 65 (69.9%) meeting Modified Sher's criteria (greater than or equal to 50% AHI reduction and AHI less than 20 events/hour). For those who achieved greater than or equal to 50% AHI reduction, mean BMI (27.5kg/m² (SD=3.6)) was significantly lower than the group with less than 50% AHI reduction (30.9kg/m² (SD=2.8), $p < 0.0001$). Average therapeutic stimulation level was significantly lower (1.6 volts vs. 2.0V, $p = 0.024$). BMI ($r = -0.36$, $p < 0.001$), functional HNS threshold at activation ($r = -0.22$, $p = 0.04$), and therapeutic HNS stimulation level ($r = -0.29$, $p < 0.01$) were negatively associated with amount of percent AHI reduction. Age, sex, and stimulation level change from baseline were not associated with percent AHI change. In multiple linear regression analysis, BMI was the significant predictor of percent AHI change. **Conclusions:** Lower BMI, lesser functional threshold level at activation, and lower therapeutic stimulation voltages are predictors for greater percent AHI reduction with HNS therapy.

10:51 Maxillomandibular Advancement Outcomes in Obstructive Sleep Apnea by Age and Gender: A Systematic Review and Meta-Analysis

Matthew O. Herbst, BS Lucas C. Licaj, BS; Ethan M. Kallenberger, MD; Shaun A. Nguyen, MD; Mohamed A. Abdelwahab, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the impact of patient age and gender on outcomes of maxillomandibular advancement for obstructive sleep apnea.

Objectives: Maxillomandibular advancement (MMA) is the most effective surgical treatment for obstructive sleep apnea (OSA) after tracheotomy. However, the influence of patient characteristics such as age and gender on MMA outcomes remains understudied. This meta-analysis evaluates MMA outcomes stratified by age and gender. **Study Design:** Systematic review and meta-analysis. **Methods:** A comprehensive literature search of CINAHL, Cochrane Library, PubMed, and Scopus was performed from inception through 2025. Studies reporting age or gender specific outcomes of MMA for adults with OSA were included. Extracted data included cephalometric measurements, apnea-hypopnea index (AHI), Epworth Sleepiness Scale (ESS), SpO₂ nadir (LSAT), surgical success, and cure rates. **Results:** Thirty-four studies comprising 588 patients were included. MMA significantly improved AHI, ESS, and LSAT ($p < 0.05$), with no significant differences in improvement between males and females or across age groups. Mean maxillary/mandibular advancement was 9.7/11.7 mm in males and 9.1/10.3 mm in females. Surgical success and cure rates were comparable between genders (OR_{success} = 1.07 [95% CI: 0.53 - 2.17]; OR_{cure} = 1.17 [95% CI: 0.50 - 2.77]). Increasing age was associated with decreased surgical success and cure, although only the decline in cure rate

reached statistical significance ($\hat{\tau}^2 = -0.028$, $p = 0.045$). Conclusions: MMA yields significant improvements in OSA outcomes regardless of age or gender. While outcomes are generally consistent across groups, clinicians should counsel older adults on the reduced likelihood of surgical cure.

10:57 Q&A

11:00 - 11:20 Break - Visit Exhibits and Posters - Coquina North

11:20 - 1:05
CONCURRENT SESSION G
HEAD & NECK
MEDITERRANEAN 7-8

PANEL

11:20 - 12:10

Managing Nerves in Head and Neck Surgery

Moderator: Ameya A. Asarkar, MD MHA FACS

Panelists: Allen S. Ho, MD; Jessica H. Maxwell, MD FACS MPH; Mirabelle J. Sajisevi, MD

Moderator: Gina D. Jefferson, MD FACS

12:10 2025 Triological Society Thesis Honorable Mention for Basic Science Award
Chemoradiation Effects on Rat and Human Muscle Related to Swallowing - Milan R. Amin, MD

12:16 Refinement of the Multivariable Predictive Prognostic PREDICTR-OPC Model for Surgical Escalation for Oropharyngeal Squamous Cell Carcinoma
Lauren L. Zhang, BA Caroline Kristunas, PhD; Hisham Mehanna, PhD, BMedSc, MBChB

Educational Objective: At the conclusion of this presentation, the participants should be able to understand which biomarkers constitute the refined predictive prognostic classifier PREDICTR-OPC model for OPSCC and the rationale behind refining the original model, and to understand the range of threshold probabilities for which the model is clinically beneficial.

Objectives: The PREDICTR-OPC model is the only prognostic classifier for oropharyngeal squamous cell carcinoma (OPSCC) also predictive of surgical outcomes. Of the four biomarkers included, survivin contributes minimally and presents practical limitations. This study aimed to refine and simplify the model by removing survivin, then reassess its prognostic predictive performance compared to the original. Study Design: This retrospective cohort study analyzed a multi-center training cohort ($n=600$) and an external validation cohort ($n=385$) of OPSCC patients. Tumor biopsies were stained for p16, high risk human papillomavirus (HR-HPV) DNA, tumor infiltrating lymphocytes. Methods: Cox proportional hazards models assessed overall survival (OS), comparing three biomarker (p16, HR-HPV, TILs) and four biomarker models. Hazard ratios (HRs) for OS were estimated in the validation cohort, adjusting for covariates. Discrimination, calibration, decision curve analysis (DCA) evaluated performance and clinical utility. Results: Among 985 patients (median age: 57 years), median OS=6.87 years (95% CI: 4.73-5.21). The three biomarker model yielded HR=4.10 (95% CI: 2.41-6.98, $P<0.001$) for high vs. low risk groups in the validation cohort, comparable to the four biomarker model (HR=4.24, $P<0.001$). Surgery was associated with improved OS in high risk (HR=0.45, $P=0.001$) but not low risk (HR=0.83, $P=0.72$) patients, consistent with the original model. Model performance was similar across all metrics (e.g. concordance index: 0.71 vs. 0.72; Brier score: 0.22 for both) as was model fit (likelihood

ratio test: $P=0.066$). DCA revealed comparable clinical benefit. Conclusions: Removing survivin preserves PREDICTR-OPC's predictive performance, offering a more cost effective, easier to implement tool for OPSCC treatment recommendations.

12:22 Identifying Factors Linked to Loss of Independence After Head and Neck Cancer Surgery in the Geriatric Population: A National Database Review

Alexa J. Kacin, MD Valentina Montanez-Azcarate, MD; Zoha Syed, BS; Kaique Filardi, MD; Brett Campbell, MD; Scharukh Jalisi, MD MBA MA

Educational Objective: At the conclusion of this presentation, the participants should be able to identify key peri-operative risk factors associated with loss of independence in geriatric patients undergoing head and neck cancer surgery, which can help to inform clinical decision making and optimize postoperative outcomes.

Objectives: Identify peri- and postoperative factors associated with loss of independence (LOI) in patients aged 75 years or older undergoing head and neck cancer surgery (HNCS). **Study Design:** Retrospective cohort study using the 2021-2023 ACS-NSQIP database. **Methods:** We included patients aged 75 years and older who underwent HNCS with available preoperative and discharge functional status data. The primary outcome was LOI, defined as a decline in functional status at discharge compared to baseline. Demographics, comorbidities, surgical characteristics, and postoperative complications were extracted. Bivariate comparisons were performed between patients with and without LOI using chi-square and t-tests, followed by multivariable logistic regression for independent predictors of LOI. **Results:** Among 4290 patients; 471 (10.9%) experienced LOI and 3819 (89.1%) did not. LOI was associated with diabetes ($p=0.001$), metastatic disease ($p=0.037$), smoking ($p=0.001$), dementia ($p<0.0001$), fall within 6 months ($p<0.0001$). Patients with LOI had longer operative times (mean 320.89 vs 63.68 min, $p<0.0001$) and hospital stays greater than or equal to 2 days ($p<0.0001$). On multivariable analysis, overweight and obese patients had lower odds of LOI (OR 0.75, 95%CI [0.57, 0.98]; OR 0.70, 95% CI [0.52, 0.95]). Operative time greater than 5 hours (OR 1.66, 95% CI [1.1-2.35]) and length of stay greater than or equal to 2 days (OR 2.13 95% CI [1.48-3.07]) were associated with LOI. Surgical procedures linked to higher odds included free flap (OR 1.89, 95% CI [1.70-8.39]), laryngeal resection (OR 3.99 95 CI [1.40-11.34]), neck dissection (OR 2.78 95% CI [1.29-5.99]), regional flap (OR 3.85, 95% CI [1.80-8.27]) and total glossectomy (OR 2.65, 95% CI [1.02-6.86]). **Conclusions:** Identifying LOI risk factors can guide surgical decision-making and discharge planning for geriatric HNCS patients.

12:28 Characterizing Salivary Gland Dysfunction in Autoimmune Diseases: A Retrospective TriNetX Study

Sharwani Kota, BS Sandhya Ganesan, BS; Punam Thakkar, MD; Arjun Joshi, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the prevalence of salivary gland dysfunction across a spectrum of autoimmune diseases and understand the range of therapeutic interventions utilized in management. Additionally, participants will learn to identify key clinical patterns—including xerostomia, sialadenitis, and associated complications—and understand how they relate to organ involvement and disease sequelae in systemic lupus erythematosus (SLE). These insights aim to guide comprehensive evaluation, patient counseling, and interdisciplinary care strategies.

Objectives: To evaluate the prevalence, management, and clinical implications of salivary gland dysfunction among patients with autoimmune diseases, with a focused analysis of associated complications and systemic involvement in systemic lupus erythematosus (SLE). **Study Design:** Retrospective database study. **Methods:** A retrospective analysis was conducted using the TriNetX Research Network. Adult patients diagnosed with autoimmune diseases--SLE, sarcoidosis, rheumatoid arthritis (RA), scleroderma, polymyositis/dermatomyositis, and ankylosing spondylitis (AS)--were identified using ICD-10 codes. Patients were stratified by presence of salivary gland dysfunction and therapeutic interventions. Prevalence, intervention patterns, secondary complications, and multi-organ involvement were compared across cohorts, with detailed analysis in the SLE subgroup. **Results:** The highest prevalence of

salivary gland dysfunction was observed in scleroderma (15.6%) and SLE (15.0%). Patients with scleroderma (3.9%) and polymyositis/dermatomyositis (1.7%) were more likely to receive sialagogue therapy compared to other autoimmune groups. Surgical interventions were rare (<1% across all cohorts). Compared to SLE patients without dysfunction, those with dysfunction demonstrated significantly higher rates of sialolithiasis (RR = 3.72, 95% CI: [2.37, 5.84]), sialadenitis (RR = 4.36, 95% CI: [3.58, 5.30]), and oral candidiasis (RR = 2.10, 95% CI: [1.90, 2.32]). They also demonstrated greater cardiac (RR = 1.37, 95% CI: [1.19, 1.58]), pulmonary (RR = 1.71, 95% CI: [1.49, 1.97]), and musculoskeletal disease involvement (RR = 1.75, 95% CI: [1.67, 1.83]). Conclusions: Salivary gland dysfunction is highly prevalent across autoimmune diseases, particularly in systemic sclerosis and SLE. This high disease burden highlights the need for early recognition, risk stratification, and multidisciplinary care to reduce morbidity.

12:34 Q&A

12:38 Development of Treatment Site Ulcerations in Patients Receiving Maintenance Cemiplimab for Head and Neck Squamous Cell Carcinoma

Ryan M. Sicard, BS Daniel O. Kraft, MD; Krzysztof J. Misiukiewicz, MD; Scott A. Roof, MD MS

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize benign treatment site ulcerations as a potential sequelae of immunotherapy treatment.

Objectives: To describe a novel phenomenon observed at our institution whereby patients receiving maintenance immunotherapy developed ulcerations near the primary treatment site that resembled recurrence. Study Design: Retrospective chart review. Methods: Five patients developed ulcers while receiving maintenance cemiplimab after induction cemiplimab followed by definitive chemoradiation therapy for HPV-associated squamous cell carcinoma. Their clinical course and laryngoscopic images of the treatment related changes were reviewed. Time from initiating maintenance therapy to ulcer development, management of the ulcer, and time to resolution were recorded. Results: The onset of the ulcers following maintenance cemiplimab ranged from 1 to 9 months with an average of 4.6 months. Three of the five patients received biopsies, which were all negative for carcinoma, but demonstrated treatment related changes including inflammation, ulceration, and fibrosis. Management varied with options including Magic Mouthwash, oral steroids, antibiotics, lidocaine, acetylcysteine, cervicofacial massage, pentoxifylline, and tococalciferol. One patient received a total laryngectomy following the development of a fistula to the spine resulting in a pathologic fracture. One patient underwent laryngectomy at an outside institution following unsatisfactory improvement with medical management. Of the three non-surgically managed patients, two of whom didn't receive biopsies, all ulcers improved following cessation of cemiplimab though some ulceration was still present at their most recent follow ups (3-11 months after development). Conclusions: Increasing numbers of patients are receiving immunotherapy. Here we describe a novel clinical entity of ulceration of the aerodigestive tract that may mimic recurrence in patients undergoing maintenance immunotherapy. Further research will need to better understand the mechanism and causality ulcer development in these patients. Clinicians should maintain an index of suspicion for this etiology among patients receiving maintenance immunotherapy.

12:44 Disparities in Immunotherapy Utilization for Cutaneous Melanoma of the Head and Neck

Thomas Patrick Hoag, BS; Kyle Davis, MD (Presenter); Matthew Simpson, MPH; Sean Massa, MD MSCI

Educational Objective: At the conclusion of this presentation, the participants will have a better understanding for the sociodemographic and healthcare related factors, including insurance status, that contribute to disparities in treatment access. More specifically, I will inform clinicians about structural barriers to receiving immunotherapy that disproportionately affect vulnerable populations. This work supports ongoing efforts to create a more just and equitable healthcare system.

Objectives: Cutaneous melanoma of the head and neck (CMHN) accounts for 20% of melanomas despite limited

surface area. Immunotherapy has significantly improved survival in advanced melanoma. Since its approval for stage III disease in 2015, immunotherapy use has increased, but uptake has not been uniform. Disparities in access have been documented across healthcare, but not specifically for CMHN. This study aims to evaluate national trends in immunotherapy use for CMHN and assess the association between insurance status and receipt of treatment. Study Design: This was a retrospective cohort study using data from the National Cancer Database (NCDB) from 2004 to 2021. Adults diagnosed with invasive, nonmetastatic stage III cutaneous melanoma of the head and neck (CMHN) were included. Patients with stage IIB/IIC. Methods: Data was abstracted from NCDB (2004-2021) and analyzed using RStudio (V2025.5.1). Odds ratios (OR) were calculated using multivariable logistic regression to assess factors associated with receipt of immunotherapy. Joinpoint regression was used to assess annual percentage change (APC) in utilization trends. Results: Of 5502 eligible patients, 3400 (37.6%) received immunotherapy. Compared to privately insured patients, uninsured/Medicaid patients had lower odds of immunotherapy (OR 0.59; 95% CI: 0.41-0.83), as did Medicare/other government insured patients (OR 0.80; 95% CI: 0.64-1.00). Rural residence (OR 0.43) and chemotherapy use (OR 0.24) were also associated with lower odds. Younger patients were more likely to receive treatment (OR 0.96 per year; CI: 0.95-0.97). Use increased from 2014-2018 (APC 29.8; CI: 21.9-42.1), plateauing near 70%. Only privately insured patients showed a significant upward trend (APC 26.4; CI: 4.7-42.7). Patients treated at integrated network and community cancer programs had higher odds of receiving immunotherapy than those at academic centers. Conclusions: Despite clear indications, disparities in immunotherapy use for stage III CMHN persist, especially by insurance type, rurality, and treatment center. Efforts are needed to promote equitable implementation of new oncologic therapies.

12:50 Wildfire Air Pollution Exposure and Head and Neck Cancer Incidence

Sophie E. Yu, MD Younsoo Jung, PhD; Noah Braunstein, MA; John Cramer, MD; Kari C. Nadeau, MD PhD; Stella E. Lee, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to characterize the association between longitudinal wildfire specific PM2.5 exposure and overall/site-specific head and neck cancer incidence.

Objectives: To determine the association between wildfire specific particulate matter 2.5 (wPM2.5) exposure and the overall and site-specific incidences of head and neck and aerodigestive cancer (HNC). Study Design: Epidemiological cohort analysis. Methods: HNC incidence data were derived from the Surveillance, Epidemiology, and End Results Program across 15 states (2016-2020). The relationship between county level wPM2.5 and HNC incidence rates was examined using a distributed lag non-linear model, adjusting for county health behaviors (tobacco and alcohol use, diet, exercise, and sexual activity), demographics (age, sex, and race/ethnicity), population size, and year, with county as a random effect. Lag effects were analyzed over 10 years. HNC subsites included larynx, hypopharynx, sinonasal, nasopharynx, oral cavity, and oropharynx (stratified by p16 status). Results: The cumulative effect of a $10\mu\text{g}/\text{m}^3$ increase in wPM2.5 on HNC incidence increased over time, reaching 37.3 (95% CI: 7.6-67.1) per 100,000 over 10 years post-exposure. A cumulative effect on overall oropharyngeal cancer was significant from 8 years post-exposure onwards (lag 0-8: 22.6 [95% CI: 4.2-41.0] per 100,000). When stratifying by p16 status, significant effects were found only for p16+ cases from the first three years after exposure, peaking at lag0-9 (4.44 per 100,000, CI: 0.17-8.71). Conclusions: Cumulative exposure to wPM2.5 is associated with increased overall and site-specific HNC incidence at longer lag periods, suggesting a delayed but substantial effect. These findings suggest that episodic peaks in air pollution from wildfires may be a risk factor in cancer pathogenesis, which warrants further research.

12:56 Impact of Cannabis Use on Free Flap Outcomes in Head and Neck Cancer

Albert Y. Li, BA Tyler J. Gallagher, MD MPH; Oluwatobiloba Ayo-Ajibola, BS; Asher C. Park, BS; Matthew E. Lin, MD; Niels C. Kokot, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the

negative influence of cannabis use on head and neck free flap outcomes in specific patient populations and the relatively worse outcomes related to nicotine use on free flap outcomes.

Objectives: To evaluate the impact of cannabis use on outcomes following head and neck free flap reconstruction, comparing it against established nicotine related complications as a benchmark. **Study Design:** Retrospective cohort study using a national database. **Methods:** Using the TriNetX U.S. Collaborative Network (2005-2025), we identified patients with documented cannabis or nicotine use dependence before undergoing head and neck cancer free flap repair. Cannabis and nicotine users were separately propensity score matched 1:1 to non-users by demographics and relevant comorbidities. Primary outcomes included flap failure, blood vessel repair (BVR), and revisions; secondary outcomes encompassed surgical site infection (SSI), pneumonia, fistula, and cardiovascular events. **Results:** Cannabis users (n=449) versus matched non-users (n=14,498) showed no significant differences in overall (n=443) or bony flap outcomes (n=118). However, cannabis use significantly increased flap failure in non-bony flaps (n=341; RR: 2.17 [95% CI: 1.11-4.22]). Otherwise, rates of BVR, flap revisions, SSI, pneumonia, and fistula were not different between groups. After matching, nicotine use (n=8,633) increased complications including BVR (RR: 4.21 [95% CI: 3.48-5.09]), flap revisions (RR: 2.85 [95% CI: 2.19-3.72]), SSI (RR: 2.75 [95% CI: 2.02-3.74]), pneumonia (RR: 3.12 [95% CI: 2.31-4.21]), and fistula (RR: 2.53 [95% CI: 1.88-3.39]). In bony flaps, nicotine raised BVR (RR: 3.45), revisions (RR: 2.67), cardiovascular events (RR: 2.38), and pneumonia (RR: 2.81). In non-bony flaps, it significantly elevated BVR (RR: 1.26), revisions (RR: 1.14), SSI (RR: 1.32), pneumonia (RR: 1.48), and fistula (RR: 1.56). **Conclusions:** Cannabis alone is associated with increased non-bony flap failure risk, though nicotine use was consistently and significantly associated with worse complication rates, especially vascular and infectious outcomes. These insights emphasize the importance of targeted preoperative counseling and risk mitigation strategies.

1:02 Q&A

11:20 - 1:05
CONCURRENT SESSION H
PEDIATRIC OTOLARYNGOLOGY
COQUINA SOUTH

Moderator: Dana M. Thompson, MD MS MBA FACS

11:20 2025 Triological Society Thesis Honorable Mention for Clinical Research Award
Cost Utility Analysis of Intracapsular and Extracapsular Techniques for Pediatric Tonsillectomy - Stephen R. Chorney, MD MPH

11:26 Long-Term Outcomes Efficacy of Intracapsular Tonsillectomy for All Indications
Shayan Jalali, MS Glenn Isaacson, MD

Educational Objective: Intracapsular tonsillectomy is less morbid than total tonsillectomy. It is underutilized because of concerns regarding effectiveness and the need for repeat surgery in the future. We evaluate its long-term efficacy for upper airway obstruction and recurrent sore throat meeting Paradise criteria.

Objectives: To evaluate the rates of symptom recurrence and repeat tonsillectomy in all children undergoing intracapsular tonsillectomy over a 14 year period. **Study Design:** Retrospective chart review with long-term telephone followup. **Methods:** With IRB approval, a computerized collection of office notes and operative reports was queried to identify all children undergoing intracapsular tonsillectomy in the years 2010-2023 at an academic pediatric otolaryngology practice. We attempted to contact these families by telephone, and after obtaining

informed consent, assessed persistence of recurrent sore throat, snoring, upper airway obstruction, development of peritonsillar abscess and need for completion tonsillectomy. Results: 182/611 families of children operated on during the study period were successfully interviewed. Median age at surgery was 8.5 year. Median followup was 8.6 years. Intracapsular tonsillectomy was effective for control of snoring/UAO/OSA (104 children), severe recurrent sore throat (72 children), and peritonsillar abscess/cellulitis (6 children), with 168/182 (92%) respondents reporting symptom resolution. 10/182 (5.5%) respondents reported postoperative hemorrhage that resulted in inpatient management. 6/182 (3.3%) patients reported undergoing completion tonsillectomy, 4 of which were for obstructive sleep apnea/upper airway obstruction. 1/182 (0.5%) child was treated for peritonsillar abscess after intracapsular tonsillectomy. Conclusions: Intracapsular tonsillectomy is effective both short- and long-term for the control of snoring/UAO/OSA and recurrent sore throat. As intracapsular surgery is safer and less painful than extracapsular tonsillectomy, it merits wider use for all tonsillectomy indications.

11:32 A Cost Effectiveness Analysis Comparing Surgical and Medical Therapies for Mild Pediatric Obstructive Sleep Apnea

Isha Shah, BS Maxwell Kligerman, MD MPH

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how cost effectiveness analysis can inform clinical decision making of mild pediatric obstructive sleep apnea.

Objectives: Mild, pediatric obstructive sleep apnea (OSA) impacts approximately 1- 4% of children, yet there is ongoing debate regarding ideal treatment. This study aims to compare the cost effectiveness of surgical vs medical treatment options of mild OSA. Study Design: Cost effectiveness analysis using a Markov decision model. Methods: A Markov model was designed to evaluate three treatments options for mild pediatric OSA: 1) adenotonsillectomy, 2) medical management with intranasal corticosteroids (ICS) alone, and 3) medical management with ICS and oral montelukast. Transition probabilities, costs, and utilities were selected based on a literature review. The model was estimated to run for five years. A 1 way sensitivity analysis was performed to account for uncertainty in the baseline utility of mild OSA. A Monte Carlo probabilistic sensitivity analysis was performed to assess the cost and effectiveness of each treatment option. Results: The utility in quality adjusted life years (QALYs) and cost in USD for adenotonsillectomy, ICS only, and montelukast and ICS were 4.93 QALYs (\$1,443), 4.86 QALYs (\$679), and 4.90 QALYs (\$1,298), respectively. Adenotonsillectomy was the most cost effective option with an incremental cost effectiveness ratio of \$10,916 as compared to medical management with ICS only. 1 way sensitivity analysis revealed adenotonsillectomy remained dominant even when accounting for uncertainty in baseline mild OSA utility value. Conclusions: Adenotonsillectomy is a more cost effective treatment option for mild OSA as compared to medical management with ICS +/- montelukast. All treatment algorithms however yielded relatively similar utilities, suggesting that treatment decisions should ultimately be individually tailored and specific to each patient.

11:38 Screening and Demographics of Neonates with cCMV in an Underserved Population

Mia N. Bersalona, BA Nicole Raia, ScD; Harpreet Kaur, MD; Yu-lan Mary Ying, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to compare differences in cCMV screening methodologies and appreciate demographic features of affected populations.

Objectives: To compare the efficacy of urine culture and urine PCR for detection of congenital cytomegalovirus (cCMV) infections, and to characterize demographic features of affected populations, at a tertiary academic hospital serving an under-resourced population. Study Design: A retrospective case series from October 2022-June 2025. Methods: Targeted screening was performed on infants who failed newborn hearing screening. Two tests were used: urine culture (n = 190) and urine PCR (n = 33). Demographic data was analyzed including: mean household income (approximated via zip code), maternal age, and gestational age - classified as term (greater than 37 weeks), pre-term (32 to 37 weeks), or very pre-term (less than 32 weeks). Results: Among 190 newborns tested with culture, 3 tested

positive (1.579%). Among 33 newborns tested with PCR, 1 was positive (3.030%). These rates exceed the national prevalence of 1 in 200 live births. The mean household income for the affected patients was \$63,115, higher than the median household income of \$39,631 for the hospital's core service area. Two cases were term births, one was preterm, and one was very preterm, with an average maternal age of 24. Conclusions: Urine PCR demonstrated higher sensitivity, supporting its use as the preferred cCMV diagnostic modality. cCMV was not correlated with socioeconomic status, maternal age, or gestational age. This highlights the need for further investigation into other contributing factors such as prenatal care, maternal health, and environmental exposures that may contribute to increased cCMV prevalence in underserved populations.

11:44 Q&A

11:48 The Impact of Milk Protein Allergy on Pediatric Otitis Media Incidence

Brittani P. Kongala, BA Gaayathri Varaventkataraman, MA; Mary Youssef, BS; Grace Maley, BS; Michele M. Carr, DDS MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the association between milk protein allergy and otitis media incidence in children, and recognize the potential implications for early diagnosis, dietary management, and preventive care strategies.

Objectives: Otitis media (OM) is among the most prevalent infections in children. This study aims to investigate the correlation between milk protein allergy (MPA) and OM incidence in children. **Study Design:** Retrospective cohort study. **Methods:** Patients aged 2-17 years were identified in the TriNetX United States database and divided into two cohorts based on the presence or absence of MPA (ICD-10-CM code Z91.011). Propensity score matching was employed to balance demographic and clinical characteristics including age, sex, race, and ethnicity. The primary outcome was the incidence of OM (ICD-10-CM codes H65 and H66). Secondary outcomes included the number of OM instances per patient. Multivariate regression models were used to adjust for confounding variables, including environmental exposures, socioeconomic factors, and family history. **Results:** 7,005,257 children were included. After propensity score matching, the final cohorts included 61,915 patients with a mean age of 1.2 years (SD=2.5). The incidence of OM was significantly higher in the MPA cohort (N=26871, 43.4%) compared to the non-MPA cohort (N=22351, 36.1%), with a risk difference of 7.3% ($p<.001$). The risk ratio was 1.20, and the odds ratio was 1.35. These findings persisted after adjusting for confounding variables using multivariate regression. **Conclusions:** This study demonstrates a significant association between MPA and an increased risk of OM in pediatric patients. The findings emphasize the importance of early diagnosis and dietary management of MPA to mitigate the risk of OM. Comprehensive care, including tailored preventive strategies, could reduce the burden of OM and improve long-term outcomes for children with MPA.

11:54 Primary Language Spoken at Home and Speech Outcomes Among Children with Cleft Palate

Amanda Ensui Du, BS Nicole Mastacouris, MD; Craig W. Hanna, MD PhD; Andrew R. Scott, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the role of primary spoken language in the assessment of palate repair outcomes and need for future interventions.

Objectives: Following cleft palate repair, perceptual speech evaluation is vital in assessing the need for additional intervention. Our goal is to understand how an observer's ability to detect speech abnormalities in an unfamiliar language may influence rates of subsequent intervention. **Study Design:** Retrospective Chart Review. **Methods:** Patients followed by a single urban cleft team for two years or more after primary palate repair were reviewed and analyzed using Fisher's exact test. **Results:** There were 124 patients representing 6 languages: 101 English, 9 Spanish, and 14 other (Vietnamese, Haitian Creole, Portuguese, and Tamil). There were equal rates of fistula formation (18.8% vs. 17.4%, $p = 0.79$), hypernasality (44.6% vs. 30.4%, $p = 0.25$), persistent hypernasality after school speech

therapy (22.8% vs. 13.0%, $p = 0.40$), and revision surgery (33.7% vs. 17.4%, $p = 0.14$) between English and non-English speaking groups. However, when grouping English and Spanish speakers, there were higher rates of initial hypernasality (45.5% vs. 14.3%, $p = 0.04$), persistent hypernasality after speech therapy (23.6% vs. 0.0%, $p = 0.04$), and revision surgery rates (33.6% vs. 7.1%, $p = 0.06$) compared to those speaking other languages. Conclusions: English speaking patients did not have significantly different hypernasality or revision surgery rates compared to patients speaking another language. However, there were significantly lower detection rates for hypernasality before and after speech therapy and lower revision surgery rates among those who spoke a language other than English or Spanish. This raises questions about possible disparities which may exist in resources available in US school systems for patients speaking less common languages.

12:00 In-Office vs Operating Room Tympanostomy Tube Insertion: Comparing Patient Behavior and Symptom Burden

Christian Harter, MS; Aaron Craft, MD (Presenter); Kelly Giroux, CPNP-PC; Charles Elmaraghy, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to compare postoperative symptoms between settings of tympanostomy tube placement and apply in the context of clinical decision making.

Objectives: Bilateral tympanostomy tube insertion (BTI) is typically performed in an operating room (OR) setting under general anesthesia; however, in-office (IO) tympanostomy tube insertion is becoming increasingly common. The goal of this study was to compare post-procedural variables following BTI in an OR versus office setting. Study Design: Prospective, single arm. Methods: Caretakers of 204 patients between the ages of 0-24 months who underwent BTI between January 2025-May 2025 were surveyed at the patients' followup appointment. 123 patients were treated IO and 81 patients in the OR. Results: A 98% post-procedure satisfaction rate was found among caregivers for both IO and OR surgeries. Within 24 hours following surgery, 72% of IO patients and 60% of OR patients required Motrin or ibuprofen. In the 24 hours following surgery, 31% of IO patients and 32% of OR patients had no symptoms. The most common postoperative symptoms reported were similar for the IO and OR group: pulling on ears (46% vs 31%, respectively) and ear drainage (45% vs 43%, respectively). Patients returned to normal behavior at an average of 6 hours postoperatively for IO and 4 hours for OR. Parents reported an improvement or no change in their child's anxiety at medical visits for 77% of IO patients and 96% of OR patients. Conclusions: The presented study demonstrates that IO bilateral tympanostomy tube insertion is a safe and reasonable management option in the pediatric population, with postoperative symptoms comparable to traditional tympanostomy tube insertion under general anesthesia.

12:06 Impact of Tracheostomy on Dysphagia in Children

Antara Gupta, BSA Seckin Ulualp, MD MBA; Ashley Brown, CCC-SLP; Felicity Lenes-Voit, MD; Cynthia Wang, MD; Ron Mitchell, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the impact of tracheostomy on dysphagia in children.

Objectives: To evaluate the characteristics of dysphagia in children with tracheostomy and determine the effect of tracheostomy tubes on swallowing function. Study Design: Retrospective cohort study at a tertiary care children's hospital. Methods: A retrospective chart review was conducted to obtain information on demographics, past medical history, and swallowing function of children who underwent tracheostomy. Video fluoroscopic swallow study (VFSS) and flexible endoscopic evaluation swallowing reports were utilized to define swallowing abnormalities. Prevalence of swallowing abnormalities, penetration aspiration scale, and functional oral intake scores were compared using Wilcoxon signed rank test, chi-square, and McNemar's tests. A $p < 0.05$ was considered significant. Results: A total of 194 (37%) of the 525 children had dysphagia before and 282 (54%) had dysphagia after tracheostomy placement ($p < 0.001$). The rate of oral phase impairment (88%) was higher than swallow triggering (53%), pharyngeal phase (67%), and esophageal phase (2%) impairment after tracheostomy ($p < 0.001$). Rates of penetration (28% versus

16%) and aspiration (28% versus 17%) were higher with thin than thick liquids after surgery ($p=0.002$). In 25 children who had VFSS, rates of abnormal swallow triggering (40% to 80%, $p=0.004$) and thick liquid penetration (12% to 40%, $p=0.008$) increased significantly after tracheostomy. Penetration aspiration scale scores were similar before (median=2) and after tracheostomy (median=2). Functional oral intake was greater after (median=3) than before tracheostomy (median=2, $p<0.001$). Conclusions: Dysphagia is a common symptom in children requiring tracheostomy. The prevalence of dysphagia increases after tracheostomy. Clinicians should be cognizant of persistent swallowing dysfunction after tracheostomy to prevent the respiratory and nutritional consequences of dysphagia.

12:12 Q&A

PANEL

12:15 - 1:05

Optimizing Tonsillectomy in the Modern Era: Where Evidence Meets Experience

Moderator: Taher S. Valika, MD FACS

Panelists: Sarah N. Bowe, MD FACS; Stephen R. Chorney, MD MPH

1:05 - 2:00 *Lunch for all attendees - Visit Exhibits and Posters - Coquina North*

2:00 - 3:45

CONCURRENT SESSION I

LARYNGOLOGY / PEDIATRIC OTOLARYNGOLOGY MEDITERRANEAN 7-8

Moderator: Kenneth W. Altman, MD PhD FACS

2:00 2025 Triological Society Thesis with Distinction Award

Development of an Endotracheal Tube to Measure Posterior Laryngeal Pressure Related to Tube Size and Hypopharyngeal Laryngeal Angle - Denis C. Lafreniere, MD MS

2:06 Postoperative Complications After Open Surgical Tracheostomy in Adults with Type 2 Diabetes Using GLP-1 Receptor Agonists Versus SGLT2 Inhibitors: A Retrospective Cohort Study

Sohil Singh, BS Sagar Matharu, BS; Ankit Choudhury, BA; Ryan Puccia, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe postoperative outcomes among adults with type 2 diabetes mellitus undergoing open surgical tracheostomy who received preoperative SGLT2 inhibitors versus GLP-1 receptor agonists, recognize differences in complication patterns between the two medication classes, and discuss the potential implications for perioperative management and future research.

Objectives: This study compared postoperative outcomes in adults with type 2 diabetes mellitus (T2DM) undergoing open surgical tracheostomy (OST) by preoperative use of sodium glucose cotransporter 2 inhibitors (SGLT2i) versus glucagon-like peptide-1 receptor agonists (GLP1RA). **Study Design:** Retrospective cohort study using federated electronic health records. **Methods:** Adults (18 years or older) with T2DM undergoing first-time OST between November 2014 and November 2024 were identified in TriNetX. Two mutually exclusive cohorts were formed: SGLT2i use without GLP1RA and GLP1RA use without SGLT2i within 180 days preoperatively. One-to-one propensity score matching was performed on demographics, comorbidities, medications, and laboratory values. Postoperative outcomes were assessed at 30, 90, and 180 days. **Results:** Of 2122 eligible patients (790 GLP1RA, 1332 SGLT2i), 650 remained in each matched cohort. At 30 days, GLP1RA use was associated with lower odds of ventilator dependence

(OR 0.725, 95% CI 0.531-0.988, $p=0.041$), heart failure exacerbation (OR 0.534, 95% CI 0.352-0.811, $p=0.003$), respiratory distress/failure (OR 0.705, 95% CI 0.565-0.880, $p=0.002$), and arrhythmia (OR 0.717, 95% CI 0.549-0.937, $p=0.015$). At 90 days, GLP1RA use was associated with lower odds of hypokalemia (OR 0.622, 95% CI 0.446-0.866, $p=0.005$). At 180 days, GLP1RA use was associated with lower odds of cardiac arrest (OR 0.583, 95% CI 0.394-0.863, $p=0.006$) and tracheostomy stoma malfunction (OR 0.569, 95% CI 0.340-0.954, $p=0.031$). Conclusions: In adults with T2DM undergoing OST, preoperative GLP1RA use was associated with lower observed rates of cardiopulmonary, electrolyte, and tracheostomy related complications compared with SGLT2i use. These hypothesis generating findings support prospective studies to clarify these associations and inform postoperative surveillance strategies.

2:12 Healthcare Utilization and Outcomes in Patients with Recurrent Respiratory Papillomatosis: A Matched Control Analysis and Subgroup Evaluation by Tracheostomy Status

Emily Kwon, BA Saharsh Talwar, BS; Rushikesh Pande, BS; Wayne Hsueh, MD; Rachel Kaye, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify demographic, socioeconomic, and regional factors influencing hospital outcomes of patients diagnosed with juvenile recurrent respiratory papillomatosis.

Objectives: To evaluate demographic and socioeconomic factors influencing hospitalization outcomes in pediatric patients with juvenile recurrent respiratory papillomatosis (JRRP). **Study Design:** Retrospective matched case-control study. **Methods:** Data from the 2003-2019 Kids' Inpatient Database was used to identify JRRP admissions. A 1:3 nearest-neighbor matching (age, gender, and race) found 544 JRRP patients to 1,633 controls. Conditional logistic regression and gamma models were used, adjusting for potential confounders. Analyses were performed using R v4.5.0. **Results:** 881 JRRP admissions were identified. Median age was 5 years; most patients were White (37.9%). JRRP was associated with higher hospital charges ($\beta=0.34$, $p=0.006$) but length of stay (LOS) was not significantly different ($\beta=-0.06$, $p=0.49$). Median LOS was 2 days in both groups, while the JRRP group had higher median total charges (\$15,238 vs \$8,663, $p<0.001$). Mortality was similar between groups (OR=0.27, 95%CI=0.04-2.11, $p=0.21$). Tracheostomy ($n=128$) was most common in patients aged 15-17 (44.1%) and 1-4 years (25.2%) ($p<0.001$). Black (OR=0.37, $p=0.002$) and Hispanic (OR=0.25, $p<0.001$) patients had lower odds of tracheostomy than White patients. Tracheostomy was more common in the South ($p=0.001$) and strongly associated with Medicaid ($p=0.013$). **Conclusions:** JRRP has higher hospitalization costs than matched controls despite similar LOS and mortality. Tracheostomy presence varied by age, race, insurance, and region--highlighting potential disparities in disease management. These findings underscore the need for standardized treatment and further investigation into sociodemographic influences on JRRP outcomes.

2:18 Awake Blue Laser Excision of Stenosis and Balloon Dilation for Supraglottic Stenosis in High Risk Airway Patients: Case Series and Operative Technique

Abbey L. Landini, BA Cyrus W. Abrahamson, BA; Andrew P. Stein, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the role of awake blue laser excision of stenosis with balloon dilation for the management of select, high risk airway patients with supraglottic stenosis and contraindications to general anesthesia.

Objectives: To describe a case series and operative technique for awake blue light laser excision of stenosis followed by balloon dilation for the management of supraglottic stenosis in high risk airway patients. **Study Design:** Case series. **Methods:** Retrospective chart review at a tertiary care academic medical center. Two patients presented with progressive dyspnea at least five years after completing chemoradiation for head and neck cancer and were subsequently diagnosed with supraglottic stenosis. Both patients had severe trismus, limited neck extension, and neck fibrosis that made general anesthesia risky and rigid laryngeal exposure very challenging or impossible. We proposed an awake surgical approach to manage their stenosis and avoid the need for tracheostomy tube placement. **Results:** Briefly, this technique started with numbing the nasal passages with neosynephrine and 4% lidocaine

followed by nebulization of 4% lidocaine. A channeled nasolaryngoscope was introduced via the nares and additional 4% lidocaine was applied topically to the glottis. The blue light laser fiber was threaded through the channel of the scope, and radial incisions/excisions were made through dense scar tissue in the supraglottis. Subsequently, balloon dilation was performed over a guidewire with patient coordinated breath holding. No intraoperative complications occurred. Both patients avoided tracheostomy and experienced durable improvement in breathing, phonation, and swallow function. Patient 1 remained stable without the need for repeat intervention at one year, while patient 2 underwent another procedure at 11 months with continued benefit. Conclusions: Awake blue light laser excision of stenosis with balloon dilation is a feasible, well tolerated approach for select patients with supraglottic stenosis who have contraindications to general anesthesia due to high risk airway anatomy.

2:22 Q&A

2:26 When They Stop Coming: Age and Hearing Loss Type as Key Factors in Pediatric BCHD Adherence

Sih-Yu Chan Yi-Chun Liu, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the clinical factors of BCHD adherence and the need for timely behavioral reinforcement strategies.

Objectives: To examine the demographic and clinical factors associated with adherence to bone conduction hearing devices followup care in pediatric patients with microtia and aural atresia. **Study Design:** Retrospective chart review study. **Methods:** This is a retrospective chart review from 2015 to 2025 of the microtia patient database of a tertiary care hospital. Data collected included ethnicity, insurance type, distance from hospital, current age, fitting age, hearing loss type, time to first followup, annual frequency of visits, and daily datalogging hours. Statistical analyses included univariate and multivariate analyses using R 3.3.0 software (R Foundation for Statistical Computing, Vienna, Austria). **Results:** The adherence score (1-9) was designed and calculated based on time first followup, annual frequency of visits, and daily datalogging hours. The type of hearing loss was significantly associated with adherence pattern ($p = 0.0098$), with patients having unilateral hearing loss demonstrating lower adherence. The current age group showed borderline significance ($p=0.0526$), but post-hoc tests still showed a significant difference between patients under 6 years and those 11 years or older ($p=0.0073$). Multivariate analysis confirmed that the group 11 years or older is significantly associated with reduced adherence ($\beta^2 = -1.74$, $p=0.0072$). The segmented regression model showed a turning point at age 9, after which adherence plateaued at a lower level. Fitting age was not statistically significant in the univariate analysis (0.8771), but the segmented regression showed a threshold at 9 months old. Although the adherence declined even among early fitted children, they still showed higher adherence scores. Insurance type and ethnicity are not significantly associated with adherence. **Conclusions:** Unilateral hearing loss and older current age are risk factors for poor long-term followup adherence in pediatric bone conduction hearing device users. Although not statistically significant, the segmented regression highlighted critical turning points at age 9 and 9 months for fitting and future followups, supporting early fitting and timely behavioral reinforcement strategies.

2:32 Phenotypic and Polysomnography Features of Children with Extreme Obstructive Sleep Apnea

Dhillion R. Advano, BS Seckin O. Ulualp, MD; Anna Wani, MD; Daniel Rongo, MD; Romaine Johnson, MD MPH; Ron B. Mitchell, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to differentiate the demographic, anthropometric, and polysomnographic characteristics that distinguish children with extreme obstructive sleep apnea (OSA) from those with very severe OSA.

Objectives: To identify the phenotypic and polysomnography (PSG) features distinguishing children with extreme from very severe obstructive sleep apnea (OSA). **Study Design:** Cross-sectional. **Methods:** Charts of children under 18 who were diagnosed with extreme OSA (AHI greater than 100) and very severe OSA (AHI between 30 and 100)

were reviewed. Data on demographics, comorbidities, BMI categories, tonsil and adenoid size, insurance type, and PSG parameters were collected. Groups were compared using the χ^2 and Wilcoxon Rank-Sum tests, with p less than 0.05 considered significant. Results: Children with extreme OSA were more likely to be from historically marginalized racial groups, with 64% identifying as Black, Asian, or other non-White races compared to 44% in the very severe group (p less than 0.001). The extreme OSA group had a higher prevalence of obesity (71% vs. 58.6%, $p=0.019$) and severe obesity (BMI greater than 99th percentile (54.0% vs. 40.1%, $p=0.013$) with a higher median BMI percentile (99.8 [IQR: 97.5-100]) vs. (98.7 [IQR: 87.9-99.9]). Children with extreme OSA demonstrated more profound hypoxemia including a lower median SpO2 nadir (69.5% [IQR: 62%-77%]) vs. (76% [IQR: 67.8%-82%], a lower average SpO2 (93% [IQR: 91%-95%]) vs. (96% [IQR: 95%-97%]) and a greater percentage of sleep time with SpO2 less than 90% (32.2% [IQR: 14.8%-55.3%]) vs. (5.7% [IQR: 2.1%-11.9%]). There were no significant differences in sex, median age, ethnicity, insurance type, median household income, tonsil size, adenoid size, comorbidities, or hypercapnia. Conclusions: Children with extreme OSA represent a distinct clinical phenotype with intersecting health disparities. The prevalence of severe obesity and profound hypoxemia in racially minoritized children suggests structural determinants drive disease severity.

2:38 Balancing Risk and Reoperation: Outcomes of Lobectomy Versus Total Thyroidectomy in Pediatric Thyroid Cancer

Ella Prebel Jackert, BS Natalie Kistler, BS; Oluwatobiloba Ayo-Ajibola, BS; Daniel Kwon, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to compare complication rates between thyroid lobectomy and total thyroidectomy in pediatric patients to inform surgical decision making.

Objectives: Given shifts toward more conservative surgical management of pediatric thyroid malignancies, this study compares postoperative complication rates between thyroid lobectomy and total thyroidectomy in pediatric patients. **Study Design:** Retrospective cohort study. **Methods:** TriNetX was queried for all pediatric patients with thyroid malignancies. Patients who underwent thyroid surgery within 6 months of diagnosis were stratified into two cohorts: 1) those who underwent thyroid lobectomy; and 2) those who underwent total thyroidectomy. Propensity score matching (PSM) controlled for demographics, indication for thyroidectomy, and body mass index. Primary outcomes were postoperative complications within 1 month. The secondary outcome was risk of reoperation with total thyroidectomy within 5 years. **Results:** 209 patients underwent lobectomy compared to 829 who received total thyroidectomy. After PSM, each cohort consisted of 180 patients. Lobectomy patients had a lower risk of hypocalcemia (8.5%) compared to total thyroidectomy patients (24.6%) (RR: 0.346, 95% CI: [0.194, 0.619]). Risks of dysphonia, vocal cord paralysis, thyrotoxicosis, hematoma or seroma, hemorrhage, and infection were extremely low for both cohorts, with no significant differences identified. 30.3% of lobectomy patients required completion thyroidectomy within 5 years. Patients undergoing reoperation were more likely to have a history of irradiation, and less likely to have multiple endocrine neoplasia syndromes than patients who did not require reoperation. **Conclusions:** Pediatric patients undergoing thyroid lobectomy for thyroid malignancies experience low complication rates and over two-thirds do not require reoperation, highlighting lobectomy as a potentially definitive and less morbid treatment approach in appropriately selected patients.

2:44 Identifying Anthropometric and Demographic Trends in Patient Satisfaction in Cleft Lip Repair Using CLEFT-Q Survey Scores: A Case Series

Febronia M. Mansour, BS Anjali Pillai, MS MD; Tazheh Kavoosi, MD; Huang Danning, MS; Dongliang Wang, PhD; Adetokunbo Obayemi, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the importance of holistic evaluation of pediatric patient satisfaction following cleft lip repair.

Objectives: Orofacial clefts are known to interfere with speech, hearing, nutrition, psychosocial health, and normal

craniofacial development. Successful holistic treatment of these clefts is not limited to structural or functional repair alone, as this minimizes the element of patient reported satisfaction. In this case series, we correlate patient reported CLEFT-Q survey scores with anthropometric facial measurements and demographic data in 26 patients with non-syndromic cleft lip and palate. Study Design: The CLEFT-Q survey is an internationally validated tool for multidimensional assessment of patient satisfaction following orofacial cleft repair. Anthropometric nasofacial ratios were obtained from clinic photos on ImageJ software by two independently trained raters. Anthropometric ratios were assessed for trends across patient ethnicity, age and sex, and correlated with CLEFT-Q survey scores. Inter-rater reliability was calculated. Methods: Anthropometric nasofacial ratios were obtained from clinic photos on ImageJ software by two independently trained raters. Anthropometric ratios were assessed for trends across patient ethnicity, age and sex, and correlated with CLEFT-Q survey scores. Inter-rater reliability was calculated. Results: Inter-rater reliability examined by a Bland-Altman analysis of agreement demonstrated consistent facial ratio measurements between raters. No differences were observed in facial measurements or CLEFT-Q total survey scores across ethnicities. Sex was significant when analyzing teeth scores only, with female patients reporting lower satisfaction with the appearance of their teeth than males ($p=0.032$). Age demonstrated an inverse correlation with total raw survey score among both males and females and across all ethnicities. Conclusions: Among patients in this case series, sex and age played important roles in patients' CLEFT-Q survey scores. This study emphasizes the importance of patient reported outcome measures when evaluating surgical outcomes in orofacial cleft care in an academic team setting. We hope to further elucidate social, psychological, and demographic factors which influence the satisfaction of pediatric patients with cleft lip through additional future studies.

2:50 Q&A

PANEL

2:55 - 3:45

RRP Update 2026

Moderator: Dinesh K. Chhetri, MD

Panelists: Milan R. Amin, MD; David F. Smith, MD PhD FACS FAAP; VyVy N. Young, MD FACS

3:45 - 4:10 Break - Visit Exhibits and Posters - Coquina North

2:00 - 3:45

CONCURRENT SESSION J

OTOLOGY

COQUINA SOUTH

PANEL

2:00 - 2:50

Hearing Loss and Cognitive Decline/Dementia

Moderator: Craig A. Buchman, MD

Panelists: Maura K. Cosetti, MD BA; Justin S. Golub, MD MS; Richard K. Gurgel, MD

Moderator: Myles L. Pensak, MD FACS

2:50 The Impact of Captioning Error Type and Severity on Speech Perception and Gaze Behavior in Noise
Kayla Aikins, BS

Educational Objective: Will be able to describe how specific captioning error types (deletions, insertions, substitutions) impact speech recognition in noisy environments.

Objectives: 1) To examine how different types of captioning errors (deletions, insertions, and substitutions) and their severity (1 word vs. 2 word) affect sentence recognition accuracy during audiovisual speech perception in noisy environments. 2) To assess how captioning error type and severity influence visual attention, as indexed by gaze allocation between the speaker's face and caption text using eye tracking measures. 3) To inform the design of more accessible and effective captioning technologies for individuals with hearing loss by identifying which error types most negatively impact comprehension and audiovisual integration. Study Design: This study used a within-subjects experimental design. Each participant completed all captioning conditions to allow for direct comparison of comprehension and gaze behavior across error types and severities. Eye tracking technology was used to capture real time visual attention patterns during audiovisual speech perception. A repeated measures approach enabled control for individual differences, with sentence and participant treated as random effects in statistical modeling. This design allowed us to isolate the specific impact of captioning errors while accounting for variability in participant performance and sentence difficulty. Methods: Ten adults with normal hearing completed an audiovisual sentence recognition task under 14 captioning conditions (accurate text; one or two word deletions, insertions, or substitutions) across two signal to noise ratios (SNRs: -4 dB and -7 dB). Sentence recognition was scored 0-4 based on content word accuracy. Gaze behavior was indexed by the log transformed ratio of dwell time on captions versus the speaker's face using eye tracking. Linear mixed effects models included captioning condition and SNR as fixed effects, with participant and sentence as random effects. Priming trials were excluded. Results: Sentence recognition was significantly lower for one and two word deletions and two word substitutions compared to accurate captions ($p < 0.05$). One and two word insertions and one word substitutions did not differ significantly from accurate captions. Two word insertions and substitutions led to significantly increased gaze toward the caption region ($p < 0.05$), while deletions did not significantly alter gaze behavior. Conclusions: Captioning error type and severity influence both speech comprehension and gaze allocation. Deletions impair comprehension without altering gaze, while insertions and substitutions, especially two word errors, increase visual attention to captions. Minimizing these error types in captioning systems may improve communication in noisy audiovisual settings.

2:56 Clinical and Demographic Factors Associated with Pharmacological Treatment Response in a Tinnitus Clinical Trial

Yalda Yazdani, MD Karen Tawk, MD; Ella J. Lee, MD; Khushi Bhatt, MS; Mehdi Abouzari, MD PhD; Hamid R. Djalilian, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify clinical and demographic variables associated with treatment response in patients receiving pharmacological therapy for chronic tinnitus.

Objectives: To determine the potential clinical and demographic variables associated with treatment response among chronic tinnitus patients who received a combination of nortriptyline topiramate (NT) or verapamil paroxetine (VP) over 8 weeks. Study Design: A secondary analysis of data from an 8 week randomized, double blind, placebo controlled clinical trial. Methods: Patients were divided between responders and non-responders based on whether they achieved a ≥ 13 point reduction (minimum clinically important difference) in the tinnitus functional index (TFI). Associations between treatment response and patient characteristics, including demographics, comorbidities, tinnitus features, and baseline questionnaire scores (PHQ-9, GAD-7, PSS, PSQI), were evaluated using Fisher's exact and Welch's t-test, with significance set at $p < 0.05$. Results: A total of 41 patients were included (17 responders and 24 non-responders). No significant associations were observed between treatment group, sex, race, migraine history, tinnitus laterality, duration, or constancy and treatment response. However, responders were significantly older (63.7 ± 7.9 vs. 55.6 ± 16.4 years, $p = 0.042$) and had higher baseline depression scores (PHQ-9: 9.6 ± 5.7

vs. 5.5 +/- 3.9, $p=0.017$). Other comorbidity measures (GAD-7, PSS, PSQI) trended higher in responders but did not reach statistical significance. Conclusions: Our findings suggest that baseline depression symptoms may influence the response to pharmacologic treatment in patients with chronic tinnitus. This highlights the potential importance of emotional and psychological factors in shaping patient reported outcomes and supports the consideration of combined pharmacologic and lifestyle modifications therapeutic approaches.

3:02 What Do Young Adults Know About Preventable Hearing Loss?

Chloe S. Bogen, MS Kathryn Noonan, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to better understand the perspective young adults have on the etiology and risks associated with hearing loss to improve prevention efforts.

Objectives: Understand public perception of established risk factors and modifiable behaviors that relate to the development of hearing loss (HL) and explore the associations between education level, sources of information on HL, and perception in young adults. Study Design: Community based cross sectional study of 18-40 year-old participants responding to a survey QR code conducted in 2025. Methods: Information on demographics, education level, perception of established risk factors, HL etiology, use of hearing protective devices, perception of knowledge, activities related to HL, sources of knowledge on HL, as well as motivation to prevent HL was collected. Descriptives and ordinal regression were used for statistical analysis. Results: Sixty-four participants were included in this study; majority were 22-26 years old (59%), female (63%), and had a 4-year degree (66%). 82% perceived earplugs as effective devices, but more than half (51%) report never using hearing protection. Despite this, 58% report having a moderate to great deal of motivation in reducing their risk of HL. Ordinal regression found that self-reported understanding of hearing loss prevention was significant in predicting peer understanding about HL causes (p less than 0.001) while age, sex, education, and self-reported understanding of HL causes were not (p greater than 0.05). Conclusions: Most participants understood the effectiveness of protective devices yet reported rarely using them. There are likely other factors contributing to lack of use that warrant further exploration. Considering most participants are motivated to reduce their risk of hearing loss, targeted strategies to educate this population may prove useful for prevention efforts.

3:08 Association of Area Level Sociodemographic Deprivation with Cochlear Implant Candidacy and Outcome Performance

Caroline Renee Christmann, MD Barak Spector, BS; Gabriella N. Cote, BS; Terrin N. Tamati, PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify the effects of geographic deprivation, as measured by the Area Deprivation Index, on hearing related quality of life and on hearing outcomes post-cochlear implantation.

Objectives: Neighborhood level deprivation affects many chronic health conditions, but its impact on cochlear implant (CI) outcomes remains understudied. CIs are significantly underutilized, particularly among individuals from lower income backgrounds. We used the Area Deprivation Index (ADI), a validated national measure of neighborhood disadvantage, to assess the relationship between deprivation and CI outcomes. Study Design: Retrospective analysis was performed on prospective data (2018-2024) from 515 post-lingually and bilaterally deafened adults undergoing unilateral CI. Methods: Speech recognition scores (CNC, AzBio in Quiet and Noise at +5 dB SNR), subjective communication (Speech, Spatial and Qualities Hearing Scale, SSQ), and hearing related QoL (Cochlear Implant Quality of Life-10 Profile, CIQOL) were collected pre- and post-CI. ADI scores (range: 1-100; lower = more deprived) were derived by geocoding addresses and matching them to ADI percentiles. Results: The average ADI was 54; 8.2% of the cohort resided in the bottom quintile and 14.2% in the top quintile. ADI was significantly correlated with all pre-CI measures: CNC ($r_s = .11$, $p = .021$), AzBio in Quiet ($r_s = .12$, $p = .011$), AzBio in Noise ($r_s = .18$, $p = .002$), SSQ ($r_s = .12$,

p = .008), and CIQOL (rs = .30, p = .012). ADI was not significantly correlated with any post-CI outcomes. Conclusions: Neighborhood level deprivation, measured by ADI, is associated with poorer pre-CI speech recognition, subjective communication, and QoL, but not with post-CI outcomes. Future interventions may be aimed at improving access to CIs in underserved communities, where post-CI benefit remains high despite delayed intervention.

3:14 Q&A

3:18 Virtual Reality Based Visual Perturbations Uncover Gait Instability in Healthy Adults

Catherine M. Gbekie, BS Siddharth Bhardwaj, PhD; Hana D. Ro, BS; Sunil K. Agrawal, PhD; Anil K. Lalwani, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to 1) understand that VR technology can be used to precisely manipulate visual input to expose subclinical dynamic gait instability; and 2) describe how VR can be leveraged as a valuable tool for the assessment and rehabilitation of subtle balance impairments in patients with mild hearing loss.

Objectives: Hearing loss is associated with impaired balance and increased fall risk, likely due to subtle multisensory integration deficits. However, traditional gait assessments fail to detect early, subclinical abnormalities, underscoring the need for more sensitive tools. Measurement of response to sensory conflict may facilitate detection of early perturbation of balance function. This study investigates the utility of instrumented gait analysis systems and virtual reality (VR) delivered visual perturbations in detecting biomechanical gait changes in healthy adults (HAs) in response to sensory conflict. **Study Design:** Cross-sectional. **Methods:** 10 HAs completed ten gait tasks on an instrumented walkway under four conditions: unperturbed no-VR, unperturbed VR, optic flow (OF) perturbed VR, and flickering lights (FL) perturbed VR. Gait parameters were captured to assess changes in dynamic stability and postural control across conditions. **Results:** Relative to the unperturbed no-VR condition, step and stride length decreased under the OF and FL VR conditions during tasks involving environmental interaction, directional change, and rotational head movement (i.e., obstacle negotiation, timed up and go, and horizontal head turns; $p < 0.01$, $p < 0.01$, $p < 0.001$). The observed increases in stride width during horizontal head turns ($p < 0.01$) and stride length variability during tandem gait ($p < 0.01$) under the perturbed VR conditions demonstrate that these perturbations elicit dynamic gait instability, which is captured by these parameters. **Conclusions:** VR induced visual perturbations expose dynamic gait vulnerabilities not present under normal conditions. Perturbation based tasks may be useful in revealing subclinical gait instability not apparent through standard assessment, offering promising approaches for early fall risk detection in patients with hearing loss.

3:24 Preoperative Air Bone Gap Predicts Thickened Stapes Footplate Requiring Drill Fenestration in Otosclerosis

Vanessa Jiahui Zhang, BA Andrew Liu, BA; Maimuna Ahmad, MD; Aaron K. Remenschneider, MD MPH; Divya A. Chari, MD

Educational Objective: At the conclusion of this presentation, participants should be able to use routine audiometry, rather than high resolution CT, to identify patients likely to require drill fenestration during laser stapedotomy and apply this knowledge to surgical planning and patient counseling.

Objectives: Determine whether preoperative air bone gap (ABG) or CT based fissula ante fenestram (FAF) radiodensity predicts a thickened stapes footplate necessitating microdrill fenestration of the footplate following attempted laser fenestration. (2) Compare audiometric and operative outcomes based on fenestration technique. **Study Design:** Retrospective cohort study. **Methods:** Adult patients who underwent primary stapedotomy surgery between September 2016 and January 2025 were included. Records of 124 surgeries were analyzed: 94 ears completed with laser fenestration, 30 ears required drill conversion for inadequate fenestration with the laser due to footplate thickness. Patient demographics, duration of hearing loss, preoperative audiometry, and CT imaging (available in 58%

of cases) were reviewed. Logistic regression assessed predictive factors (age, sex, hearing loss duration, ABG, FAF radiodensity). ROC analysis identified optimal ABG thresholds. Results: Mean patient age was 53 +/- 13 years, 57% were female, and 82% had 5 or more years of hearing loss. Drill converted cases had larger preoperative ABGs (44.1 +/- 9.2 dB vs. 39.4 +/- 10.7 dB; $p = 0.023$). Each additional 1 dB increased drill risk by 5% (OR 1.05). An ABG of 40 dB or greater predicted drill conversion with 73% sensitivity; 47 dB or greater yielded 78% specificity. FAF radiodensity was nonpredictive ($p = 0.83$). Both fenestration methods achieved comparable hearing outcomes, operative times (approximately 125 min), and no profound sensorineural hearing loss. Conclusions: A preoperative ABG around 40 dB nearly doubles the likelihood that laser fenestration will fail due to a thickened stapes footplate. Surgeons can leverage this simple audiometric marker to anticipate drill usage, streamline operative planning, and counsel patients effectively.

3:30 The Relationship Between Body Mass Index and Mastoid Soft Tissue Thickness: Implications for Bone Conduction Hearing Devices

Vanessa Jiahui Zhang, BA Soomin Myoung, BSE; Behroze A. Vachha, MD PhD; Aaron K. Remenschneider, MD MPH

Educational Objective: At the conclusion of this presentation, participants should be able to describe how body mass index (BMI) is predictive of mastoid soft tissue thickness and apply these data to decisions about percutaneous and transcutaneous bone conduction hearing devices.

Objectives: Mastoid soft tissue thickness varies between individuals and is clinically relevant for bone conduction audiology and fitting of implantable bone conduction hearing devices. We systematically measure mastoid soft tissue thickness at defined locations in a diverse population and correlate this measurement with BMI, age, and sex. **Study Design:** Retrospective radiographic cross-sectional study. **Methods:** Adult temporal bone CT scans from patients with hearing loss but without cutaneous scalp disorders were reviewed by two blinded raters using OsiriX software. Soft tissue thickness measurements at three anatomically defined and surgically relevant mastoid locations were made in each ear. Demographic data and BMI at the time of CT were recorded. Associations were tested with Pearson r and multivariable linear regression; inter-ear symmetry with paired analysis; reliability with intraclass correlation coefficient (ICC). **Results:** Fifty-nine scans were reviewed (30 female), ages 18-89 years (mean 46 +/- 23), with BMI ranging from 20-72 kg/m² (mean 31.7 +/- 9.6). Mastoid soft tissue thickness ranged from 4.5-25.3 mm (mean 10.3 +/- 4.1). Patients with BMI under 25 compared to over 35 kg/m² had mean thicknesses of 7.9 mm and 14.0 mm, respectively (1.8-fold difference). Thickness increased by 0.31 mm per BMI point ($r = 0.70$, $p < 0.001$), independent of age ($p = 0.38$) and sex ($p = 0.06$). The right-left difference was 0.01 mm ($r = 0.84$), and the inter-rater ICC was 0.995. **Conclusions:** Mastoid soft tissue thickness on routine CT increases predictably with BMI, is symmetric between ears, and varies nearly six-fold, and can be measured with near-perfect reliability. Integrating mastoid soft tissue thickness predictions based on BMI will assist with bone conduction device workups, appropriate device selection and reduce the need for additional imaging or operative trial and error.

3:36 Differences in Acute Mastoiditis Management Among Pediatric and Adult Cohorts in the United States from 1998 to 2021

Ayush G. Iyer, BS Walter Kutz, MD; Rance J.T. Fujiwara, MD MBA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how admission and procedural trends in inpatient mastoiditis management compare between pediatric and adult patient populations and, in turn, how they inform our discussion of national practice patterns in acute mastoiditis care.

Objectives: To evaluate differences in mastoiditis related complications, operative procedures, and admissions to academic centers in pediatric and adult patients admitted with acute mastoiditis from 1998 to 2021. **Study Design:** Cross-sectional analysis of the National Inpatient Sample. **Methods:** Patients admitted with a primary diagnosis

of acute mastoiditis from 1998 to 2021 were identified and stratified by pediatric (less than or equal to 18 years) and adult populations. Demographics and mastoiditis related complications were tabulated. Inpatient procedures (i.e. myringotomy and mastoidectomy) were recorded. Binary logistic regression analysis was performed to identify predictors of admission to academic centers. Results: From 1998-2021, 88,591 acute mastoiditis admissions were identified, including 36,338 pediatric and 52,253 adult patients. Pediatric cases declined ($b=-44.7$; $p<0.001$), while adult cases increased ($b=52.5$; $p<0.001$), though the proportion admitted to academic centers significantly increased in both. Among those with complications, 83.7% (SE 1.1) of pediatric admissions underwent a procedure, compared to 46.8% (SE 1.4) of adult admissions. Mastoidectomies declined significantly in pediatric (12.8% to 3.4%, $p<0.001$) and adult patients (33.9% to 1.7%, $p<0.001$), while myringotomies increased. Mastoiditis related complications (OR 1.66), pediatric patients (OR 1.82), and non-white race (OR 1.39) were significantly associated with academic admissions ($p<0.01$). Conclusions: Acute mastoiditis admissions have decreased in the pediatric population over the last two decades, as opposed to markedly increased adult admissions. Simultaneously, operative management involving mastoidectomy has decreased, though patients with associated complications are more likely to undergo mastoidectomy procedures and be admitted to academic facilities. These findings are observational in nature but highlight important trends regarding healthcare resource utilization.

3:42 Q&A

3:45 - 4:10 Break - Visit Exhibits and Posters - Coquina North

PANEL

4:10 - 5:00 AI - The Good, The Bad, and the Seemingly Ugly

Moderator: Eric A. Gantwerker, MD MS MMSc (MedEd) FACS

Panelists: Andres M. Bur, MD FACS; Anthony B. Law, MD PhD; Maya G. Sardesai, MD MEd

5:00 - 6:15 Resident Bowl (open to all attendees) - Mediterranean 7-8

6:15 - 7:45 Poster Reception (light dinner; open to all attendees) - Coquina North

7:45 - 8:45 The Maxine Bennett Reception - Sponsored by Everis (formerly the Women in OTO Reception; open to all attendees) - Porte Cochere

SATURDAY, JANUARY 24, 2026

6:45 - 7:45 Business Meetings (Triological Fellows only)

Middle Section - Del Lago 1-2

Eastern Section - Del Lago 3-4

7:30 Breakfast for all attendees - Coquina North

8:00 - 9:45

CONCURRENT SESSION K

RHINOLOGY / ALLERGY

MEDITERRANEAN 7-8

Moderator: Arthur W. Wu, MD

8:00 Demographic and Comorbidity Associations with Disease Severity and Bony Dehiscence in Allergic Fungal Rhinosinusitis

Brittany Beisel, MD; Hanna L.K. Long, MD (Presenter); Owen Hallauer, BS; Arjun Bhatt, BS; Ibtisam Mohammad, MD; Diana Bigler, MD; Stilianos Kountakis, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe possible demographics and comorbidities related to treatment and severity of allergic fungal sinusitis

Objectives: To evaluate whether demographic factors, comorbidities, or the presence of bony dehiscence are associated with disease severity at initial presentation in patients with allergic fungal rhinosinusitis (AFRS). Study Design: retrospective cohort, literature review. Methods: A retrospective review was conducted on 25 patients with AFRS seen at a tertiary care center. Demographics, comorbidities, SNOT-22 scores, Lund-Kennedy endoscopy scores, Lund-Mackay CT scores, and presence of bony dehiscence at various skull base and orbital sites were recorded. Patients who had previous sinus surgery were excluded. Statistical analyses included t-tests and ANOVA. Results: Among the patients analyzed, asthma was significantly associated with higher disease severity, including both Lund-Kennedy ($p = 0.038$) and Lund-Mackay scores ($p = 0.032$). Logistic regression showed comorbidity of asthma trending toward significance ($p = 0.054$) in association with bony dehiscence. Conclusions: In our patient cohort with AFRS, asthma is associated with more severe disease. These findings suggest that comorbid asthma may be a useful marker for identifying patients at greater risk of greater disease severity at initial presentation.

8:06 Prognosis of Chemosensory Recovery Among Long COVID-19 Patients -- Objective Assessment at 3, 6 and 12 Month Followups

Lauren E. Gastineau, BS Veronica Formanek, BS; Joanne Xu, BS; Nidhi Jha, BS; Christopher Simons, PhD; Kai Zhao, PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the changes in chemosensory symptoms of long COVID-19 over time.

Objectives: Chemosensory dysfunction is a hallmark symptom of COVID-19 infection, with many patients experiencing symptoms beyond initial infection. This ongoing study aims to capture the timeline in chemosensory recovery following post-acute sequelae of SARS-CoV-2 infection (PASC). Study Design: Preliminary analysis includes 28 patients (30-74 years old, median: 56.5) who contracted COVID-19 from 3/2020 to 11/2023, 8-51 months (median: 32.5) prior to the initial visit. All then completed a 3 month followup, 18 completed a 6 month followup, and 11 Methods: Patients received objective testing of 1) smell function using the 9 Item NIH Toolbox Odor Identification (ID) test, odor detection threshold (ODT) to phenyl-ethyl alcohol (PEA), and retronasal flavor identification (candy test); 2) taste function using the modified NIH toolbox; and 3) chemesthesis using menthol lateralization thresholds. Results: Patients self-reported a high prevalence of smell (79%) and taste (68%) losses. 77% confirmed objective smell loss, while only 21% confirmed objective taste loss. At 3 month followup, patients exhibited significant improvements in objective smell (odor ID, $p=0.0108$) function but not objective taste (NIH Toolbox, $p=0.1970$), yet the number of patients exhibiting objective chemosensory losses remained high (smell 50%, taste 21%). At the 6 month followup, 50% of patients demonstrated smell loss and 33% demonstrated taste loss. At the 12 month followup, 64% of patients exhibited smell loss while only 27% exhibited taste loss. Conclusions: These findings suggest significant fluctuations in chemosensory function following COVID-19 infection, with prognosis prolonged and uncertain, and self-report being unreliable, especially for taste loss. Future work will continue to evaluate smell and taste for a larger sample size.

8:12 Surgeon Reported Psychophysical Symptoms and Pain During In-Office Rhinology Procedures

Orli Weiss, BA; Corinne Stonebraker, BA (Presenter); Katherine Liu, MD; Jonathan Dropkin, ScD; Maura Cosetti, MD; Anthony Del Signore, MD; Satish Govindaraj, MD

Educational Objective: At the conclusion of this presentation, the participants should better understand the risks of musculoskeletal exertion and pain associated with common in-office rhinology procedures.

Objectives: To evaluate surgeons' perceived exertion and musculoskeletal pain during office-based rhinology procedures to supplement known ergonomic research based on kinematic data. **Study Design:** Observational cross-sectional study. **Methods:** Two fellowship-trained rhinologists answered the modified Borg CR10 Rating of Perceived Exertion (RPE) scale during office-based procedures. Pain scores were collected after each procedure using the 100 mm Visual Analogue Scale with verbal anchors for fifteen anatomical regions. Procedure type, duration, and time of day were also recorded. **Results:** Eight turbinate reductions, five rhinitis procedures (one with turbinate reduction), and two balloon sinuplasties (one with turbinate reduction) were included. Mean RPE and pain scores were 3.4 (0-7) and 16.6 (0-70). Longer procedures ($p=0.01$) and procedures performed in the afternoon ($p=0.02$) were associated with higher RPE. Afternoon cases were associated with higher proportions of time spent at higher RPE than morning cases ($p=0.02$). Highest average pain scores were found in the right ankle, lower back, bilateral shoulders, and neck, though longer procedure duration was associated with higher pain scores only in the right wrist ($p=0.04$), left ankle ($p=0.04$), and right ankle ($p=0.007$). **Conclusions:** Procedure duration and time of day were associated with increases in surgeon perceived exertion. Longer procedures were associated with increased wrist and ankle pain, though shoulder, neck and lower back pain was reported across all procedures regardless of length. Understanding the impact of office-based procedures on surgeon musculoskeletal symptoms may help mitigate risks for work related musculoskeletal disorders in rhinologists.

8:18 A Workforce Analysis of Allergy Trained Otolaryngologists in the United States

Shreya R. Bhalla, BS Rushikesh Pande, BS; Harsh Rohilla, BA; Ariana L. Shaari, MD; Kenneth Yan, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the current demographic and geographic distribution of allergy trained otolaryngologists (ATOs), interpret workforce trends through 2050, and identify strategies to address regional gaps in access to otolaryngologic allergy care.

Objectives: Otolaryngic allergy has become an increasingly important component of comprehensive ENT care, driven by rising demand for medical management of allergic rhinitis and related disorders. Despite this clinical expansion, there has been no updated national analysis of allergy trained otolaryngologists (ATO). This study aims to describe the current demographic and geographic distribution of ENT physicians practicing allergy in the United States and project workforce trends through 2050. **Study Design:** Cross sectional analysis **Methods:** A national database of otolaryngologists practicing allergy was compiled using publicly available data from the American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS) directory. Physicians were categorized by formal allergy fellowship training, gender, residency background, and years in practice. Practice locations were mapped to hospital referral regions (HRRs) for geographic analysis. Workforce growth was projected using recent AAOA membership trends and a 35-year practice horizon. **Results:** A total of 361 FPRS were identified, of whom 6.9% were fellowship trained (FT). The workforce was predominantly male (87.3%), with women comprising 12.7% of all surgeons. FT surgeons averaged 31.4 years in practice, compared to 29.3 years among non-fellowship trained (nFT) peers. The greatest concentration of ATO was found in Dallas ($n = 18$) and Atlanta ($n = 10$). The most saturated HRRs by population per surgeon included Atlanta, GA, and Dallas, TX. Forecasting models project modest growth, driven primarily by nFT surgeons, with FT numbers rising gradually. **Conclusions:** Otolaryngic allergy is an evolving subspecialty, currently dominated by nFT otolaryngologists. While formal training remains limited, its gradual growth may support more integrated care. Addressing geographic disparities will be key to improving access and outcomes.

8:24 Q&A

8:28 Association of Symptoms and Nasal Endoscopy Findings with CT Confirmed Chronic Rhinosinusitis

Corey Michael Karp, BS Mitchell Figueroa, BA; Jaynelle Gao, MS; Joshua Lin, MD; Kevin Hur, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the association of chronic rhinosinusitis (CRS) symptoms and endoscopic findings with CT confirmed CRS.

Objectives: To assess the association between CRS symptoms and endoscopic findings with CT confirmed CRS. **Study Design:** Retrospective cohort study. **Methods:** Consecutive adult patients (age ≥ 18) without prior sinonasal diagnoses or sinus surgery who underwent nasal endoscopy and sinus CT were reviewed. Demographics, cardinal symptoms, SNOT-22, and Lund-Kennedy (LK) endoscopic scores were abstracted from electronic medical records. Regression analyses were conducted to assess the associations between several predictor variables and CT confirmed CRS. **Results:** Our cohort ($n=100$) was majority male (54%) with an average age of 45.59 years; 78% of the patients had CT confirmed CRS. CT confirmed CRS and CT negative groups had similar demographic distributions. Presence of at least 2 out of 4 cardinal symptoms positively predicted higher Lund-Mackay (LM) CT scores among Asian patients ($\beta=4.3$, $p=0.025$), but was not associated with an increased likelihood of CT confirmed CRS overall ($OR=0.67$, 95% $CI=[0.24-1.03]$) or within racial subgroups. An increase in cardinal symptoms or the LK score positively predicted higher LM scores ($\beta=1.2$, $p=0.014$, $\beta=1.2$, $p<0.001$), but only higher LK scores were associated with an increased likelihood of CT confirmed CRS ($OR=1.45$, 95% $CI [1.10-2.09]$). SNOT-22 scores were not associated with CT confirmed CRS. **Conclusions:** Nasal endoscopy findings and the assessment of cardinal symptoms of CRS are important factors in predicting CRS CT findings.

8:34 Gender Specific Immune Profiles and Their Association with Disease Severity and Quality of Life in Chronic Rhinosinusitis

Shvetali Thatte, BS Nader G. Zalaquett, MD; Mohamad R. Chaaban, MDE

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the association between cytokines and chronic rhinosinusitis severity and quality of life outcomes across genders.

Objectives: Chronic rhinosinusitis (CRS) involves persistent inflammation of the nasal and sinus mucosa, largely driven by cytokines. Although gender differences in CRS presentation have been reported, their underlying local and systemic immune profiles and associations with quality of life (QoL) remain poorly understood. This study explores gender-specific immune patterns and their relationship to CRS severity and QoL. **Study Design:** Prospective observational study. **Methods:** A prospective study enrolled bilateral CRS patients at a tertiary care center from December 2021 to February 2024. Middle meatal cytokine levels were quantified and analyzed in relation to disease severity (Lund-Mackay scores) and QoL outcomes (SNOT-22 and RSDI). Associations were assessed using univariate and multivariate regression analyses. **Results:** A total of 81 patients were enrolled (34 females, 47 males), with cytokine data available for 54 (20 females, 34 males). No significant sex differences were observed in demographics or overall cytokine levels (p greater than 0.05). In the overall cohort, cytokines did not correlate with Lund Mackay, RSDI, or SNOT 22 scores (p greater than 0.05). However, sex stratified analyses revealed significant associations between T2 cytokines and RSDI (IL-5 p less than 0.001, IL-9 $p = 0.018$, IL-13 $p = 0.054$) and Lund Mackay scores (IL-5 $p = 0.011$, IL-13 $p = 0.025$) in males, but not females. These associations persisted across CRS phenotypes (CRSsNP vs CRSwNP) and after adjusting for asthma in multivariate analyses. **Conclusions:** T2 cytokines correlated with RSDI and LM scores in males but not with SNOT-22, suggesting RSDI may better predict T2-driven inflammation and serve as a more effective clinical tool for CRS assessment, particularly in males. Larger studies are needed to confirm these findings and guide personalized care.

8:40 WITHDRAWN - Inflammatory Endotypes in Chronic Rhinosinusitis (CRS) with and without Asthma: Insights from Nasal and Systemic Cytokine Profiling - Presenter: Zachary Loarn Upchurch, MD

8:46 Sensing Nasal Airflow -- Where is TRPM8 Transcribed

Inbar Fried, PhD Brian D. Thorp, MD; Brent A. Senior, MD; Joseph M. Clark, MD; Adam J. Kimple, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the role of TRPM8 in sensing nasal airflow, know which cells express TRPM8, and recognize the current limits in our understanding of TRPM8's nasal distribution.

Objectives: TRPM8, a cold sensing receptor, is believed to play a central role in the sensation of nasal airflow and patency. Studies have demonstrated TRPM8 receptors are expressed in the nasal subepithelium, but investigation of TRPM8 gene expression at the cellular level is limited. We evaluate TRPM8's expression in the nose in healthy patients and patients with chronic rhinosinusitis (CRS). **Study Design:** We used publicly available gene expression data of 22 healthy controls and 15 CRS patients. **Methods:** Cells in healthy controls were sampled from the inferior turbinate. Cells in CRS patients were sampled from the inferior turbinate and ethmoid sinus. Gene expression was analyzed using CellXGene. **Results:** TRPM8 was expressed in 24 out of 59 cell types with 8 cell types found only in CRS patients, 10 found only in healthy patients, and 6 found in both groups. Cells expressing TRPM8 in both groups were subtypes of epithelial cells. The number of cells that expressed TRPM8 within each cell type was low (< 1%). **Conclusions:** We identify epithelial cell subtypes expressing TRPM8. Despite its important role in sensing nasal airflow, the level of expression of TRPM8 appears low. This may be due to the limited anatomical nasal diversity in our sample. Additional studies that sample tissue across various nasal sites will help clarify the distribution of TRPM8 within the nose and identify cell types that express TRPM8 and are important in the sensation of airflow.

8:52 Q&A

PANEL

8:55 - 9:45

Standing the Test of Time: Review of Hot Rhinologic Techniques

Moderator: Stacey T. Gray, MD FACS

Panelists: David A. Gudis, MD FACS; Devyani Lal, MD MBBS MS; Jivianne T. Lee, MD FACS

9:45 - 10:15 Break - Visit Exhibits and Posters - Coquina North

8:00 - 9:45

CONCURRENT SESSION L

GENERAL & SLEEP

COQUINA SOUTH

PANEL

8:00 - 8:50

Otolaryngology Update for 2030 - An Exciting Look into the Future

Moderator: Anand Devaiah, MD FACS

Panelists: John P. Giliberto, MD; Soha N. Ghossaini, MD FACS; Jessica R. Levi, MD

Moderator: James K. Fortson, MD MPH MBA FACS

8:50 Investigating the Connection Between Meniere's Disease and Migraine and the Effect of Migraine Medication on Meniere's Symptoms

Khushi Bhatt, BS Karen Tawk, MD; Marianne Rara, BS; Abigail Dichter, BA; Saharnaz Nedjat, MD PhD; Mehdi Abouzari, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the link between migraine and Meniere's disease (MD) and migraine medication's impact on MD symptoms.

Objectives: To assess migraine and MD's connection, while considering migraine medication's impact on MD symptoms. Study Design: Retrospective cohort study of the TriNetX network between 2005 and 2025. Methods: Migraine patients from TriNetX were included in cohort A and split into subgroups At (patients taking migraine medications) and Ant (patients not taking migraine medications). Cohort B consisted of migraine free patients. The index date for subgroup Ant was defined as the date of migraine diagnosis, whereas for subgroup At it was date of simultaneous migraine medication usage and migraine diagnosis. The index date for cohort B was the date of their last healthcare appointment. Propensity score matching was performed between cohorts A and B and subgroups At and Ant. Diagnoses of MD, associated symptoms (vertigo, tinnitus, and hearing loss), and other comorbidities were recorded at index date and tracked five years post-index date. Risk ratio, risk difference, and odds ratio were calculated. Results: Cohort A demonstrated higher MD (OR=8.03, 95% CI [4.16, 4.50]) and associated symptoms incidence than cohort B. Subgroup At, at index date, had greater MD (OR=2.51, 95% CI [1.49, 4.22]) and vertigo (OR=4.01, 95% CI [2.01, 8.03]) incidence than subgroup Ant, but both subgroups had no difference in hearing loss (OR=1.06, 95% CI [0.91, 1.22]) and tinnitus (OR=0.93, 95% CI [0.85, 1.02]) incidence. Post-index date, MD (OR=3.01, 95% CI [1.82, 5.00]), vertigo (OR=5.02, 95% CI [2.55, 9.91]), hearing loss (OR=1.68, 95% CI [1.46, 1.95]), and tinnitus (OR=1.77, 95% CI [1.58, 1.98]) incidence increased in subgroup At compared to subgroup Ant. Conclusions: Migraine patients have greater MD incidence than non-migraine patients. Migraine patients taking migraine medications have greater incidence of MD and vertigo at baseline than migraine patients not taking migraine medications. The incidence of MD, vertigo, tinnitus, and hearing loss increases within five years post-index date amongst patients taking migraine medications.

8:56 A Workforce Analysis of Sleep Medicine Trained Otolaryngologists in the United States

Shreya R. Bhalla, BS Rushikesh Pande, BS; Sneha Subhash Menon; Alexandra Filipkowski, MPH; Ariana L. Shaari, MD; Andrey Filimonov, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the current demographic and geographic distribution of sleep medicine trained otolaryngologists (SMTOs), interpret workforce trends through 2050, and identify strategies to address regional gaps in access to procedural sleep care.

Objectives: With rising demand for comprehensive sleep disordered breathing care, sleep medicine trained otolaryngologists (SMTOs) play a growing role in integrating medical and surgical management. However, workforce data on SMTOs remains limited. This study assesses the current demographic and geographic distribution of SMTOs and projects workforce trends through 2050. Study Design: Cross Sectional Analysis. Methods: We created a database of practicing SMTOs using publicly available data from the American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS) directory, the International Surgical Sleep Society (ISSS), and academic institutions. Providers were categorized by fellowship status, gender, years in practice, and residency background. Practice locations were mapped to hospital referral regions (HRRs) to assess geographic distribution. Workforce projections used recent fellowship graduation rates and a 35-year practice span. Results: A total of 314 sleep-medicine-trained otolaryngologists (SMTOs) were identified, of whom 15.6% had completed formal sleep medicine fellowships. The workforce was predominantly male (76.1%) in comparison to women (23.8%). Fellowship trained SMTOs had been in practice for an average of 7.5 years, compared to 19.4 years among non-fellowship trained counterparts. The highest concentrations of SMTOs were found in metropolitan areas such as Manhattan (n = 16), Houston (n = 12), and Philadelphia (n = 12). The most saturated hospital referral regions (HRRs), based on population-per-provider ratio, included New Haven, CT, and Boston, MA. Projections suggest a steady rise in fellowship trained SMTOs, but this is offset by attrition among non-fellowship trained providers, resulting in limited net workforce growth. Conclusions:

SMTOs are increasingly central to procedural sleep care, but workforce growth is limited as non-fellowship trained providers retire. Aligning training with geographic needs is essential to maintain access.

9:02 Cardioprotective Effect of GLP-1 Agonist use in Patients with Obstructive Sleep Apnea: A Retrospective Cohort Study on Associated Cardiovascular Risk Factors

Morgan Lane, BS Alex Jin, BS; Boston Andersen, BS; Alec Kadrie, BS; Evan Thomson, MD; M. Boyd Gillespie, MD MSC

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the utility of GLP-1 agonists in reducing cardiovascular risk in patients with obstructive sleep apnea (OSA).

Objectives: Obstructive sleep apnea (OSA) is strongly associated with obesity and often results in significant cardiovascular complications. This study aimed to assess cardiovascular outcomes in OSA patients treated with GLP-1 agonists (GLP-1a) versus CPAP. Study Design: Retrospective cohort analysis using TriNetX datasets (2014-2024) compared cardiovascular outcomes of four cohorts: OSA + CPAP + GLP-1a (n=280), OSA + CPAP (n=280), OSA + GLP-1a (n=5690) and OSA (n=5690), after propensity score matching. Methods: Outcomes of interest include myocardial infarction, heart failure, stroke, cardiac arrest, ventricular arrhythmias, atrial fibrillation/flutter, pulmonary hypertension, and percutaneous coronary intervention (PCI) or coronary artery bypass graft (CABG). Relative risk (RR) was calculated using TriNetX tools. Results: In the non-CPAP cohort, GLP-1 agonist therapy showed decreased risks of myocardial infarction (RR 0.650 [0.523-0.808]), heart failure (RR 0.500 [0.357-0.701]), cardiac arrest (RR 0.300 [0.199-0.450]), ventricular arrhythmias (RR 0.385 [0.278-0.532]), atrial fibrillation/flutter (RR 0.833 [0.762-0.912]), and PCI/CABG (RR 0.333 [0.163-0.681]). No significant differences were observed in stroke or pulmonary hypertension between GLP-1+ and GLP-1- groups in this cohort. Among patients using CPAP, GLP-1 agonist use was associated with a decreased risk of atrial fibrillation/flutter (RR 0.700 [0.542-0.905]), with no other differences observed. Conclusions: Our study indicates that GLP-1 agonists may offer cardioprotective benefits not achieved with CPAP therapy alone in OSA patients. Additional research is required to determine whether the observed benefits exhibit variability based on obesity status among patients with obstructive sleep apnea.

9:08 Treatment Outcomes of Hypoglossal Nerve Stimulation in Patients with Comorbid Insomnia: A Systematic Review and Meta-Analysis

Ali Asghar Haider, BS Wasif Abdullah, BS; Mitch Weatherford, BS; Sage Virginia Hebert, BS; Joel James, MD; Christina Ward, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to compare hypoglossal nerve stimulation (HGNS) outcomes between patients with comorbid insomnia and obstructive sleep apnea (COMISA) and patients with obstructive sleep apnea (OSA) alone.

Objectives: HGNS is an increasingly popular intervention in the treatment of OSA for patients who have failed standard positive airway pressure therapy. While outcomes are promising, HGNS success is not universal. This study aims to evaluate the potential impact of comorbid insomnia on outcomes after HGNS for treatment of OSA. Study Design: Systematic review and meta-analysis. Methods: PubMed, Embase, Scopus, and Ovid Medline were searched for English language articles comparing COMISA and OSA only patients who underwent HGNS. Primary outcomes included change in apnea hypopnea index (Δ AHI), Epworth Sleepiness Scale (Δ ESS) and adherence time in patients COMISA and patients with OSA only after HGNS. Results: Of the 315 unique abstracts retrieved through our queries, 15 studies were included in the review. Ultimately, 4 studies (N = 684) were included in the meta-analysis. No significant differences were observed between the Δ AHI of the COMISA group and the OSA only group (mean difference (MD) -0.73 [-3.65, 2.18], $p = 0.62$) or in Δ ESS changes (MD -0.30 [-1.04, 0.43], $p = 0.42$). COMISA patients did, however, exhibit significantly less therapy adherence compared to the OSA only group (MD -0.57 [-0.95, -0.20], $p = 0.003$). Conclusions: Our analysis suggests that COMISA patients do not experience any differences in reduction of

AHI or ESS scores when compared to patients with only OSA when undergoing HGNS. This is despite COMISA patients exhibiting lower adherence to HGNS therapy compared to OSA only patients. COMISA patients may therefore require more intervention to improve therapy use.

9:14 Q&A

9:18 The Impact of the HeLa Cell Line in Otolaryngology: A Scoping Review

Taylor L. Jamil, MD MPH Scott E. Mann, MD; Andrew P. Johnson, MD; Christina Cabrera-Muffly, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify and summarize literature within the field of otolaryngology in which the HeLa cell impacted our understanding within each subspecialty of the field.

Objectives: HeLa Cells, isolated from Henrietta Lacks' cervical cancer cells by Johns Hopkin's clinicians and scientists, have provided insights that have revolutionized almost every field of medicine. This review highlights how HeLa cells have contributed to the field of otolaryngology. **Study Design:** Scoping review. **Methods:** PRISMA techniques of a systematic review were applied to capture all articles that involved HeLa cells in each subspecialty in Otolaryngology using PubMed MeSH terminology. 377 articles were reviewed within each subspecialty to provide a scoping review. **Results:** In the 1920s, genital and cutaneous warts were noted to contain viral cells. It was not until the HeLa cell was isolated in 1953 that the ability of human papilloma virus (HPV) to cause cancer was identified. In the late 1990s, HPV-mediated head and neck squamous cell carcinoma (HNSCC) was postulated due to the rising HNSCC rates in people who did not use tobacco or alcohol. Using 253 patients, a study by Gillison et al., (2000) isolated the HPV virus in 25% of these cases, of which almost all came from the oropharynx. Since then, analysis of HPV oncogenes (E6-8 and retinoblastoma), cell cycle pathways, and protein death ligand's relationship to the immune system in HNSCC have all been evaluated through the lens of HeLa cell research. Within other otolaryngology subspecialties, the HeLa cell has been used to test cochlear physiology, understand hair cell degeneration and postulate hair cell regeneration, evaluate the impact of non-syndromic and familial-inherited hearing loss, and study how the immune system is involved in otitis media progression. Studies have used HeLa cells to examine how specific receptors or pathways can influence chronic inflammation in chronic rhinosinusitis and nasal polyp formation. The field of plastic surgery has taken advantage of the HeLa cell's replicative properties examining how cell adhesion and migration vary on collagen-grafted surfaces for wound healing. **Conclusions:** The HeLa cell line has revolutionized the field of otolaryngology due to the cell line's malignant, replicative, and, largely, intact cell signaling properties. We aim to honor Henrietta Lack's legacy by enumerating the great advances her cells have had within otolaryngology.

9:24 Implementation of a Novel VTE Risk Assessment Instrument for Otolaryngologic Surgical Patients

Richard Lu, MD MBA MSc Heather Berman, BS; Anthony Sclafani, MD MBA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how to implement the COBRA and Pannucci Risk Assessment Models (RAM) for VTE, which are two simplified RAMs designed specifically for surgical patients as an alternative to the Caprini RAM. Additionally, participants will understand the effect of using or not using chemoprophylaxis for ambulatory and inpatient ENT procedures amongst patients at high risk and low risk for VTE.

Objectives: Venous thromboembolic events (VTE) are a leading cause of postoperative morbidity, prolonged hospital stay, and increased cost. The risk of 30 day VTE in otolaryngologic surgeries has been reported from 0.4-1.3%, though the value has been shown to vary up to 10-fold in certain subspecialties (e.g., head and neck / microvascular surgery). Recommendations for VTE chemoprophylaxis are traditionally based on the 2005 Caprini Risk Assessment model, though this model is often not used in many practice settings due to practical challenges with collecting all inputs required. Our objective is to implement two simplified VTE risk assessment models, the COBRA (inpatient

procedures) and Pannucci-NSQIP (ambulatory procedures), at two large tertiary academic centers to track usage and outcomes from chemoprophylaxis. Study Design: Quality improvement, prospective observational study. Methods: This is a prospective quality improvement initiative study capturing VTE risk assessments for all procedures (ambulatory and inpatient) and two large academic tertiary care institutions using the Pannucci and COBRA risk assessment models, respectively. From 1/1/2025 through 5/30/2025, data has been collected on 1,988 patients. VTE chemoprophylaxis recommendations are sent to all attending and resident team members. The decision whether to start chemoprophylaxis was ultimately made by the attending surgeon or primary team. Admitted patients are followed for the duration of their hospitalization, and outcomes are assessed, including adherence to DVT chemoprophylaxis recommendations and rates of VTE or postoperative hemorrhage. Results: Of all surgical procedures examined, 14% were surgical admissions and the remainder ambulatory. 63% of surgical admissions and 14% of ambulatory procedures were stratified as high risk for VTE. VTE chemoprophylaxis recommendations were followed 71% of the time for surgical admissions. Amongst surgical admissions at high risk for VTE, there were 6 VTE events (6.1%) and 15 bleeding events (11.2%) when chemoprophylaxis was prescribed; on the other hand, there were 3 VTE events (7.0%) and 3 bleeding events (7.0%) when chemoprophylaxis was not prescribed. Amongst surgical admissions at low risk of VTE, there was 1 VTE event (2.5%) and 2 bleeding events (5.1%) when chemoprophylaxis was prescribed; there were no VTE (0%) and 2 bleeding events (2.9%) when chemoprophylaxis was not prescribed. There were no VTEs seen amongst ambulatory procedures. Conclusions: We outline a path to implementing a VTE risk calculator for otolaryngology surgical departments to track and improve adherence to DVT chemoprophylaxis recommendations and postoperative outcomes. These results demonstrate the face validity of the risk assessment models and offer further evidence for EHR integration to facilitate wider use amongst surgical departments.

9:30 The Price is Right: Variation Among Otolaryngology Procedure Pricing Across Independent Hospitals and Health Systems

Mitchell Mead, BSA Andrew M. Ibrahim, MD MDsc; Pratyusha Yalamanchi, MD MBA

Educational Objective: At the conclusion of this presentation, the participants should be able to describe differences in negotiated commercial prices for common otolaryngology procedures at system affiliated hospitals compared to independent hospitals.

Objectives: Hospitals are increasingly consolidating into health systems, raising questions on the potential impact of prices for services. The recently implemented CMS Hospital Price Transparency Rule has newly allowed systematic evaluation of commercially negotiated prices between hospitals and insurers. The objective of this study is to evaluate the association of health system affiliation on commercial prices for common otolaryngology services. Study Design: 2025 cross sectional analysis of commercially negotiated prices for common otolaryngology procedures. Methods: Commercially negotiated prices for health care services were obtained from the Turquoise Health Database, which aggregates and processes price data published by US hospitals in accordance with the Hospital Price Transparency Rule (accessed June 2025). Current Procedural Terminology codes were used to identify 16 high volume, commonly reported otolaryngology procedures. Price data were linked to the Agency for Health Research and Quality Health System Compendium file, which documents system-affiliation across hospitals. The primary outcome was price variation per otolaryngology procedure within and across health systems. Additionally, a generalized linear model was utilized to estimate price differences between independent and system-affiliated hospitals. Results: A total of 775,735 prices were reported by 2,897 hospitals across the 16 otolaryngology procedures, with the most common service reported being laryngoscopy with or without tracheoscopy (CPT 31525, N=81,317). Commercial prices for otolaryngology procedures varied substantially within and across health systems. For example, prices negotiated within the same health system across insurers varied 3.5-fold on average for maxillary antrostomy (CPT 31276). Commercial prices were significantly higher for 14 out of the 16 services when negotiated by a system affiliated hospital compared to an independent hospital. Across all otolaryngology procedures, reimbursement was 39% higher on average at system-affiliated hospitals compared to independent hospitals (\$5,416vs\$3,890, $p<.001$). Conclusions:

Negotiated commercial prices for common otolaryngology procedures vary substantially across health systems and are significantly higher compared to prices at independent hospitals. These findings elucidate the direct impact of practice site and environment on otolaryngology procedure reimbursement.

9:36 Risk of Anxiety and Depression After Tracheostomy: A National Analysis Using Epic Cosmos

Peter J. Attia, BA Emily Kwon, BA; Dylan Roden, MD MPH; Rachel Kaye, MD FACS; Kenneth Yan, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the burden of psychiatric illness in the tracheostomy population.

Objectives: Despite the profound psychological and physical impact of tracheostomies, the mental health consequences remain inadequately studied. This study evaluates the incidence of major depressive disorder (MDD) and anxiety following tracheostomies. **Study Design:** Nationwide longitudinal EHR cohort analysis using Epic Cosmos. **Methods:** We identified patients who underwent tracheostomy placement unrelated to infectious disease and without documented decannulation. Using encounter level ICD codes, we calculated the 12 month pre- and post-procedure incidence of MDD and anxiety, and stratified by race, sex, and age. Pre-procedure incidence served as an internal control. A sensitivity analysis was conducted within head and neck (H&N) cancer patients. Risk ratios (RR) and 95% confidence intervals were calculated ($\hat{I}\pm 0.05$). **Results:** Among 45,623 tracheostomy patients, MDD incidence rose from 5.1% 12 months pre-procedure to 8.1% 12 month post-procedure (RR:1.40 [1.33-1.47], $p<.001$), and anxiety from 7.3% to 10.2% (RR:1.40 [1.34-1.46], $p<.001$). Increased risk was consistent across age groups, with ages 18-44 having the highest risk of MDD (RR:1.49 [1.31-1.70], $p<.001$) and anxiety (RR:1.63 [1.42-1.88], $p<.001$). Stratification by sex observed increased risk, in males (MDD RR:1.55 [1.45-1.65], $p<.001$; anxiety RR:1.52 [1.42-1.61], $p<.001$). All racial groups showed increased risk, statistically greatest in African Americans for both MDD (RR: 1.44 [1.26-1.64], $p<.001$) and anxiety (RR: 1.51 [1.31-1.73], $p<.001$). H&N cancer patients ($n=30,967$, 67.8%) also observed elevated risk of MDD (RR:1.49 [1.41-1.58], $p<.001$) and anxiety (RR:1.48 [1.41-1.55], $p<.001$) in the post-tracheostomy period. **Conclusions:** Tracheostomy is associated with increased risk of depression and anxiety, especially among H&N cancer patients. This supports the importance of mental health screening and support in post-tracheostomy care and the need for future studies.

9:42 Q&A

9:45 - 10:15 Break - Visit Exhibits and Posters - Coquina North

PANELS

10:15 - 11:00

Beyond the Otoscope: Family Care for the Sandwich Generation

Moderator: M. Elise R. Graham, MD FRCSC

Panelists: Kristen A. Echanique, MD; Jeffrey P. Simons, MD MMM; Julie L. Wei, MD MMM

11:00 - 11:45

Ergonomics in Otolaryngology

Moderator: Ross M. Mayerhoff, MD

Panelists: Holly Bruinsma, RKT CEAS REAS; Justin S. Golub, MD MS; Brent A. Senior, MD FACS; Libby J. Smith, DO

11:45 - 12:30

Navigating the Political Shifts in Your Everyday Practice

Moderator: Earl H. Harley, MD FACS

Panelists: Carol R. Bradford, MD MS FACS; Michael Hoa, MD; Christopher G. Tang, MD

12:30 Adjourn

1:00 *Harold C. Pillsbury Golf Outing / Sip N Spa / Free Time*

POSTER PROGRAM

ALLERGY/RHINOLOGY

1. **Chronic Rhinosinusitis in the Context of Autoimmune Disease: A Comprehensive Large Population Based Analysis**

Robert E. Africa, MD; Amber M. Dunmire, MD; Shahrukh R. Ali; Brian J. McKinnon, MD MPH MBA; Charles A. Hughes, MD MPH MBA; Scott A. Hardison, MD

Educational Objective: At the conclusion of this presentation, participants should understand the epidemiological association between chronic rhinosinusitis (CRS) with premorbid autoimmune diseases. Participants will additionally recognize the association between CRS with nasal polyposis and other autoimmune disease that have not been previously evaluated including gastrointestinal and dermatological. Objectives: To evaluate the epidemiological associations between CRS with or without nasal polyposis and a wide variety of autoimmune diseases with a large population-based database. The present study will be the largest known study with other autoimmune disease that have not been previously well studied. Study Design: Multicenter retrospective cohort study utilizing de-identified patient data from the United States. Methods: The TriNetX database was utilized to identify patients with or without autoimmune diseases including alopecia areata, ankylosing spondylitis, celiac disease, Crohn's disease, dermatomyositis, fibromyalgia, granulomatosis with polyangiitis (GPA), Hashimoto's disease, multiple sclerosis, rheumatoid arthritis, ulcerative colitis, and systemic lupus erythematosus (SLE) among many others. The rates of CRS with or without nasal polyposis were evaluated. Results: Patients with alopecia areata, ankylosing spondylitis, celiac disease, Crohn's disease, dermatomyositis, fibromyalgia, GPA, Hashimoto's disease, multiple sclerosis, rheumatoid arthritis, and ulcerative colitis had a significant association with CRS without nasal polyposis (RR 1.13[1.02-1.25]; 1.31[1.20-1.43]; 1.25[1.18-1.33]; 1.19[1.13-1.26]; 1.16[1.02-1.32]; 1.28[1.25-1.30]; 1.71[1.60-1.84]; 1.12[1.08-1.17]; 1.12[1.06-1.19]; 1.31[1.27-1.35]; 1.20[1.14-1.26]). GPA, fibromyalgia, Hashimoto's disease, multiple sclerosis, and ulcerative colitis were significantly associated with CRS with nasal polyposis (RR 1.18[1.10-1.26]; 1.05[1.02-1.07]; 1.06[1.02-1.11]; 1.20[1.02-1.18]; 1.11[1.06-1.17]). Conclusions: In a large national database, there are multiple significant associations between a wide variety of autoimmune diseases and development of CRS but fewer epidemiological associations with development of CRS with nasal polyposis.

2. **The Impact of Pediatric Tonsillectomy and Adenoidectomy on Incidence of Adult Chronic Rhinosinusitis with or without Nasal Polyposis**

Robert E. Africa, MD; Amber M. Dunmire, MD; Shahrukh R. Ali, MD; Harold S. Pine, MD; Charles A. Hughes, MD MPH MBA; Scott A. Hardison, MD

Educational Objective: At the conclusion of this presentation, the participants should understand the epidemiological association between pediatric adenotonsillectomy with development of adult chronic rhinosinusitis (CRS) with or without nasal polyposis. Listeners will also understand appreciate the rate of surgical intervention and usage of biologic treatment. Objectives: To evaluate the epidemiological associations between pediatric tonsillectomy and adenoidectomy with development of CRS with or without nasal polyposis. The study will secondarily evaluate the rate of surgical intervention and rate biologic treatment with a large population-based database. This will be the first study utilizing longitudinal data following patients from childhood to adulthood for evaluation. Study Design: Multicenter retrospective cohort study utilizing de-identified patient data from the United States. Methods: The TriNetX database was first utilized to identify adult patients older than 18 years who either did or did not have a history of tonsillectomy with adenoidectomy, tonsillectomy alone, or adenoidectomy alone. Between each surgical group, the rates of CRS with or without nasal polyposis, surgery, or prescription of biologic therapy were evaluated. Confounding variables including asthma were controlled with 1:1 propensity score matching. Results: Between adults who did or did not have tonsillectomy with adenoidectomy as a child, there was no statistically significant difference in the rate of adult CRS, CRS with nasal polyposis, surgery, and treatment with biologic therapy (RR 1.02[0.97-1.08];

0.83[0.64-1.09]; 0.93[0.69-1.26]; 1.06[0.81-1.38]). Adults who had tonsillectomy alone as a child had a higher rate of CRS, while patients who had adenoidectomy alone had a higher rate of CRS and surgery as an adult (RR 1.13[1.02-1.24], 1.80[1.58-2.03]; 2.72[1.36-5.44]). Conclusions: Adult patients who had tonsillectomy alone as a child were observed to have a significantly higher associated risk of CRS, while adults who had adenoidectomy alone as a child had a higher rate of CRS and surgical intervention. There was no observed increased risk of CRS with or without nasal polyposis and surgical intervention for adults who had both tonsillectomy and adenoidectomy as a child.

3. Predictors of Hospitalization for Patients Presenting to the ED with Epistaxis

Jaladhija Chalichama, BS; Joshua B. Smith, MD; Matthew C. Simpson, MPH; Justin Antisdell, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify key clinical and systemic factors associated with admission to the ED and determine if utilizing a risk stratification tool can improve triage in the ED and patient outcomes. Objectives: To identify clinical and systemic factors that predict hospital admission in patients presenting to the ED with epistaxis using a large national emergency department database. Study Design: Retrospective database analysis. Methods: Adult ED visits with a primary diagnosis of epistaxis from the 2017 Nationwide Emergency Department Sample (NEDS) were analyzed. To be included in the study, patients must be evaluated for hospital admission or discharge during the ED visit. Trauma related epistaxis and transfer patients were excluded. Comorbidities of interest including CKD, CAD, CHF, liver disease, and substance use were assessed. Descriptive statistics were utilized to assess admission rates and comorbidities in epistaxis presenting patients. Results: Among a sample size of 348,629 adult patients presenting with epistaxis, 2.7% were admitted. Hypertension (40.2%), tobacco use (22.6%), and type II diabetes (14.9%) were found to be the most prevalent comorbidities. On the other hand, severe comorbid conditions, including myocardial infarction (43.5%), peptic ulcer disease (42.7%), and hemiplegia (31.8%) presented with high admission rates among adults with epistaxis. Conditions with greater systemic complexity showed higher admission rates. Conclusions: The results indicate that even though admissions of patients presenting to the ED with epistaxis are not common, a few comorbidities greatly increase admission risk. These findings display the need for a comorbidity weighted risk stratification tool to assist with ED triage and management to improve efficiency, equity, and utilization of resources. Multivariate modeling using a comprehensive dataset is more likely to confirm independent predictors and control for confounding variables.

4. NORTOC: Nasal Obstruction Randomized Trial with Oxymetazoline and Corticosteroids

Lucas Cruz, BA; Dorina Kallogjeri, MD MPH; Jay Piccirillo, MD FACS; Nyssa Farrell, MD; Katherine Schweteye, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the magnitude of the change in nasal airway symptoms as a result of nasal spray treatment with combination oxymetazoline and budesonide as compared to budesonide alone. Objectives: Determine the effectiveness, tolerability, and safety of long-term combination oxymetazoline+budesonide. Study Design: Single center, double blinded, randomized, controlled trial. Sixty participants with nasal obstruction recalcitrant to topical steroids were randomized to an oxymetazoline+budesonide nasal spray (OBNS) or budesonide nasal spray (BNS). Full dose treatment for 4 weeks was followed by 3 weeks of dosage weaning of oxymetazoline. Ten participants underwent pre and post treatment inferior turbinate biopsies to explore histopathological changes. Methods: The primary outcome measure was the rate of responders, defined as the number of participants reporting at least moderate improvement on the clinical global impression improvement scale at 4 weeks of treatment, divided by the total number of participants in each group. Rebound obstruction or difficulty weaning were defined as present if clinical global impression severity scale increased by at least 1 point. Results: A total of 29 out of 31 participants randomized to OBNS group and 28 out of 30 participants randomized to BNS group completed 4 weeks of treatment. The rate of responders was 47% (95% CI: 25% to 70%) higher in the OBNS group (n=24, 83%) as compared to BNS group (n=10, 36%). None of the participants in OBNS group experienced worsening of obstruction or rebound effect. All participants successfully weaned off

oxymetazoline. No significant differences in mucosal inflammation or fibrosis were present between the groups. Conclusions: There was a large, statistically significant, and clinically meaningful greater proportion of responders in the oxymetazoline arm, without evidence of rhinitis medicamentosa. Long term oxymetazoline+budesonide can be considered for the treatment of nasal obstruction for patients failing topical steroids.

5. Endoscopic Sinus Surgery Long-Term Revision Rate: National Database Analysis

Isaac Elijah, MS3; Ayden Dunn, MS3; Estephania Candelo, MD MSc

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the rate of revision of endoscopic sinus surgery of CRS and its phenotypes. Objectives: This study aims to determine long-term revision ESS rates using a nationwide deidentified patient database, focusing on CRS with nasal polyps (CRSwNP) and CRS without nasal polyps (CRSsNP). Study Design: Retrospective cohort study. Methods: We conducted a retrospective cohort study using deidentified patient data from TriNetX Research Network (January 2004-November 2024). Inclusion and exclusion criteria were defined using current procedural terminology (CPT) and International Classification of Diseases, 10th Revision (ICD-10) codes. Patients with comorbidities potentially affecting revision ESS rates and those under 18 or over 90 years of age were excluded. Overall revision rates, sinus specific revision rates, and Cox regression analysis of the demographic and comorbid factors influencing revision ESS were evaluated. Results: Among patients with CRS, the overall long-term revision ESS rate was 15.76%. CRSwNP patients had a significantly higher rate (28.33%) compared to CRSsNP patients (12.50%). CRSwNP patients also exhibited higher revision rates across all sinuses, including frontal sinusotomies (12.11% versus 3.22%), total ethmoidectomies (8.18% versus 2.76%), and maxillary antrostomies with tissue removal (13.74% versus 4.18%). They were also likely to undergo multiple revision procedures. Older age at diagnosis and certain ethnic backgrounds were associated with increased revision risk, whereas sex, asthma, tobacco use, and allergies showed no significant association. Conclusions: Revision ESS rates from this national database align with trends reported in previous studies. CRSwNP patients are at increased risk for revision ESS. Further research is warranted to evaluate the impact of early intervention in high risk patients.

6. Impact of IVIG on Healthcare Utilization Among Immunodeficient Patients with Chronic Rhinosinusitis

Mitchell Figueroa, BA; Jaynelle Gao, MS; Connie Tian, BS; Kevin Hur, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to evaluate the association of intravenous immunoglobulin (IVIG) therapy and healthcare utilization among immunodeficient patients with chronic rhinosinusitis (CRS). Objectives: To examine the association between IVIG therapy and CRS-related outcomes among patients with an immunodeficiency Study Design: Retrospective cohort study Methods: Adult patients (≥ 18 years old) with a diagnosis of CRS and a primary (PID) or secondary (SID) immunodeficiency were identified in the TriNetX database. The exposed group received their first IVIG dose within 12 months of their initial CRS diagnosis. A 1:1 matched cohort without IVIG was created based on age, sex, race, asthma history, CRS subtype, and immunodeficiency subtype. Outcomes included endoscopic sinus surgery (ESS), oral steroids, oral antibiotics, and emergency department (ED) or inpatient visits. A subgroup analysis compared PID and SID. Risk ratios (RR) and 95% confidence intervals (CI) were measured at 1, 3, and 5 years. Results: After matching (n=3,693 per group), IVIG therapy was associated with a lower risk of ESS at 1 year (RR 0.661; 95% CI 0.554-0.789; $p<0.0001$) and 3 years (RR 0.818; 95% CI 0.701-0.955; $p=0.0106$), but a higher risk of steroid and antibiotic prescriptions, and ED/inpatient visits across all timepoints ($p<0.0001$). No significant difference in ESS risk was found between PID and SID. Conclusions: IVIG therapy was associated with a decreased risk of surgical intervention over 5 years but an increased utilization of steroids, antibiotics, and acute healthcare. These findings suggest that IVIG may help delay or prevent surgical intervention in immunodeficient patients with CRS.

7. Can Artificial Intelligence Reliably Evaluate the Quality and Accuracy of Allergic Rhinitis Content on Social Media?

Brandon S. Gold, MD; Emily Kwon, BA; Lucy Revercomb, BS; Alexandra Filipkowski, BA; Rachel Kaye, MD;

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the limitations of artificial intelligence in evaluating the quality and accuracy of allergic rhinitis related short-form social media content. **Objectives:** To evaluate allergic rhinitis (AR) related short-form content and assess the ability of artificial intelligence (AI) to determine the quality and accuracy of this content. This study aims to explore the reliability of AI as a tool for AR content verification. **Study Design:** A search of YouTube Shorts was conducted for AR related hashtags and then evaluated by both medical personnel and a generative AI platform. **Methods:** Posts were categorized by content category, author, and popularity. Content quality was analyzed with the Global Quality Score (GQS) and accuracy with the Accuracy in Digital-health Instrument (ANDI). Video quality was independently assessed by two reviewers and video accuracy graded by a physician reviewer. The transcript of each video was then evaluated by ChatGPT for both quality and accuracy. **Results:** A total of 91 AR related short form posts were collected from YouTube Shorts, with an average of 145,837 views per video. A large majority of the videos were intended to be educational in nature (84.6%) and were posted by a medical professional (70.3%). ChatGPT scored the quality of the posts significantly higher on average than the individual reviewers (3.77 vs. 2.88, $p < 0.01$). Additionally, ChatGPT assigned a higher accuracy score on average compared to physician review (3.41 vs. 2.77, $p < 0.01$). **Conclusions:** Short form social media posts demonstrate low accuracy and are lacking in adequately educating the general population on AR. ChatGPT overestimates both quality and accuracy of the existing content and does not currently serve as an appropriate tool for quality and accurate medical advice.

8. Sex Differences in Biologic Acceptance for Chronic Rhinosinusitis with Nasal Polyposis

Ryan Goodman, BS; Bastien A. Valencia, MD; Angela M. Donaldson, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify potential sex based differences in time to initiation, refusal, and reported hesitancy regarding biologic therapy after medical recommendation for chronic rhinosinusitis with nasal polyposis. **Objectives:** Biologic therapies have been shown to improve outcomes for patients with chronic rhinosinusitis with nasal polyposis (CRSwNP). While prior studies suggest higher overall biologic use among women, anecdotal trends at our institution indicate men may initiate therapy more readily. This study investigates sex based differences in biologic initiation time, refusal, and reported hesitancy after medical recommendation. **Study Design:** Retrospective cohort study. **Methods:** Chart review of patients 18 years and older who were recommended biologic treatment for CRSwNP at a tertiary academic center from June 2019 to June 2025 was performed. Patients previously treated with biologics were excluded. Initiation time was calculated from the date of recommendation to first injection. Hesitancy was defined as reluctance to begin long-term medication, desire for a second opinion, or concern for side effects. A Mann-Whitney U test compared initiation times between sexes. Fisher's exact test assessed differences in biologic refusal. Subgroup analysis was performed among patients with injection delays above the median to evaluate sex based hesitancy differences in those with prolonged initiation time. **Results:** 94 patients (49 men, 45 women) with a mean age of 53 years were included. Women had a longer mean time to biologic initiation than men (145 vs. 114 days; $p = 0.05$). Biologic refusal and hesitancy occurred more frequently in women (33%, 53.3%) than men (22%, 29.4%), though not statistically significant ($p = 0.361$, 0.280). **Conclusions:** Men initiated biologic treatment for CRSwNP more promptly than women. We found no significant difference in refusal and reported hesitancy. These findings may inform counseling strategies to ensure equitable access to biologics for treatment of CRSwNP.

9. Prevalence of Chronic Rhinosinusitis in Children with Asthma: A Systematic Review and Meta-Analysis

Paul B. Hankey, DO; John Dewey, MD; Saif Al-Qatarnah, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the prevalence of CRS in children with asthma. **Objectives:** Chronic Rhinosinusitis (CRS) is a clinically relevant comorbidity

in pediatric asthma which, if unrecognized, may lead to continued exacerbation of disease. Prevalence of CRS in children with asthma seems to be uncertain due to variability in study designs and diagnostic criteria. Greater understanding this relationship has implications for both diagnosis and disease management. Study Design: Systematic review and meta-analysis. Methods: A systematic search was conducted across PubMed, Embase, Web of Science, and Cochrane CENTRAL through June 2025 to identify observational studies reporting CRS prevalence in children (≤ 18 years) with diagnosed asthma. Inclusion criteria required the use of imaging or endoscopy to diagnose CRS. Data pooling was done using the random effects methods model. I² statistics were used to assess heterogeneity. Results: Three studies with a total of 272 children with asthma met eligibility criteria. The pooled prevalence of CRS across these studies was 30.5% with a 95% confidence interval of 25% to 35.9%. Heterogeneity was low ($I^2 = 0\%$), which strengthens confidence in the consistency of these results across different study settings and modalities. Diagnostic modalities included sinus imaging and nasal endoscopy. Conclusions: Children with asthma have a higher prevalence of CRS when compared to healthy children. Our study shows that nearly 1 in 3 children with asthma were found to have concomitant CRS. This supports the need for routine screening for CRS in children with asthma as part of pediatric asthma management protocols.

10. Dupilumab Related Adverse Events and Intolerance in Aspirin Exacerbated Respiratory Disease Patients

Lancelot Herpin, BA; Randy Bach, BA; John V. Bosso, MD

Educational Objective: At the conclusion of this presentation, the participants should understand the intolerance rate of dupilumab in aspirin-exacerbated respiratory disease (AERD) patients and the most common reasons for intolerance. Objectives: To evaluate real-world intolerance rates and reasons for discontinuation of dupilumab in patients with aspirin-exacerbated respiratory disease (AERD). Study Design: Retrospective chart review. Methods: The 360 patients in the AERD REDCap database containing data on patients from August 2016 to June 2025 were analyzed for patients who received at least one dose of dupilumab. Demographic data, treatment duration, and reasons for discontinuation were extracted from medical records for these patients. Results: Of the 37 AERD patients treated with at least one dose of dupilumab, 10 (27.0%) experienced adverse effects. A total of 8 patients (21.6%) stopped the medication, with 6 discontinuations (16.2%) attributed to adverse reactions. Among these, the most frequently reported side-effects were severe joint pain ($n=4$, 10.8%), severe allergic rash ($n=3$, 8.1%), and severe eosinophilia ($n=1$, 2.7%), defined as an eosinophil count exceeding 5,000/ μL . One patient (2.7%) discontinued due to lack of clinical improvement and another for an unspecified reason. Additional side effects that did not lead to discontinuation included increased frequency of infections ($n=2$, 5.4%), dry eyes ($n=1$, 2.7%), blurry vision ($n=1$, 2.7%). The patient who experienced blurry vision initially stopped dupilumab but later restarted due to anosmia and nasal polyp recurrence. Patients who discontinued dupilumab had an average treatment duration of 8.1 ± 5.9 months, compared to 37.9 ± 18.4 months among those who tolerated the medication. Conclusions: This study represents a large real-world series examining dupilumab intolerance in AERD patients. A substantial proportion experienced adverse events, with joint pain, allergic rash, and eosinophilia being the most frequently reported resulting in discontinuation. The observed intolerance rate appears comparable to that of alternative treatments such as aspirin therapy after desensitization (ATAD).

11. Phenotype Stratified Comparison for Dupilumab Associated Reduction in Healthcare Utilization in Chronic Rhinosinusitis with Nasal Polyps (CRSwNP)

Albert Y. Li, BA; Oluwatobiloba Ayo-Ajibola, BS; Tyler J. Gallagher, MD MPH; Matthew E. Lin, MD; Ido Badash, MD; Kevin Hur, MD

Educational Objective: At the conclusion of this presentation, participants should be able to describe phenotype-specific differences in Dupilumab's impact on healthcare utilization -- including corticosteroid prescriptions, surgeries, ED visits, antibiotic use, and admissions -- in CRSwNP patients and apply these insights to personalized patient management and future research planning. Objectives: To explore heterogeneity in Dupilumab's association with discrete utilization endpoints in CRSwNP by phenotype. Study Design: Retrospective propensity matched cohort

study using a large multi-institutional electronic health record network. Methods: Using TriNetX, Dupilumab-treated CRSwNP patients were matched to never-treated controls within four CRSwNP phenotypes: asthma, allergic rhinitis, aspirin-exacerbated respiratory disease (AERD), and primary immunodeficiency associated disease. Matching included demographics, comorbidities, prior sinonasal surgery, baseline systemic corticosteroid use, and prior utilization. Time-to-event analyses produced hazard ratios (HRs) with 95% confidence intervals (CIs) for systemic corticosteroid prescriptions, endoscopic sinus surgery, emergency department visits (ED), antibiotic use, and inpatient admissions. Results: Among CRSwNP with asthma, Dupilumab significantly reduced the risk for steroid prescriptions (0.83; 0.75-0.92), endoscopic sinus surgery (HR 0.78; CI 0.69-0.87), ED visits (0.70; 0.58-0.85), and inpatient admissions (0.80; 0.65-0.98), without significantly reducing antibiotic use (0.81; 0.71-0.93). Among CRSwNP with allergic rhinitis, Dupilumab significantly reduced steroid prescriptions (0.86; 0.78-0.95), surgery (0.82; 0.74-0.91), ED visits (0.65; 0.55-0.78), and antibiotic use (0.81; 0.71-0.92) without significant effect on admissions (0.97; 0.80-1.19). Among CRSwNP with AERD, Dupilumab significantly reduced steroid prescriptions (0.78; 0.70-0.87), surgery (0.77; 0.68-0.87), ED visits (0.70; 0.58-0.84), inpatient admissions (0.72, 0.59-0.88), and antibiotic use (0.75; 0.66-0.87). Among CRSwNP with a primary immunodeficiency, admissions decreased (0.50; 0.26-0.96); other endpoints trended non-significantly steroid HR 0.82; surgery 0.94; ED 0.68; antibiotics 0.93). Conclusions: Dupilumab's effect on healthcare utilization among patients with CRSwNP is both phenotype and outcome specific. Broad reductions in utilization occur among those with comorbid asthma, allergic rhinitis, and AERD. With primary immunodeficiency, benefits are minimal. Thus, individualized expectations and future targeted effectiveness research are indicated.

12. Anxiety in Chronic Rhinosinusitis: Stratified Outcomes Following Endoscopic Sinus Surgery

Jamie R. Oliver, MD; Naomi Wang, MD; Easton Attwood, BA; Ann Weesner, BA; Nathan Farrokhan, MD; Jennifer A. Villwock, MD

Educational Objective: At the conclusion of the presentation, participants should be able to interpret retrospective data linking functional endoscopic sinus surgery (FESS) with lower associated rates of anxiety and depression disorders in adults with chronic rhinosinusitis (CRS). They should be able to identify patient subgroups, including women, older adults, and individuals without nasal polyps, who demonstrated the largest differences in psychiatric outcomes. Participants should also be able to consider how these retrospective patterns may help define prospective studies evaluating mental health outcomes following surgery. Objectives: This study examined whether functional endoscopic sinus surgery (FESS) is associated with a reduction in prevalence of anxiety disorders in adults with chronic rhinosinusitis (CRS) and how this relationship varies by sex, age, and nasal polyp status. Study Design: We conducted a retrospective cohort analysis using the TriNetX Research Network, a multi-institutional electronic health record platform. Methods: Adults aged 18 years and older with CRS were identified and stratified by whether they had undergone FESS. After 1:1 propensity score matching on demographics and baseline psychiatric diagnoses, outcomes were assessed over a five-year period. The primary outcome endpoint was diagnosis of anxiety disorder (ICD-10 F41). Secondary endpoints included depressive episode, major depressive disorder (MDD), and use of antidepressant medications. Cohorts were matched and stratified by sex, age (<50 vs. ≥ 50 years), and presence of nasal polyposis. Results: Among 200,430 matched patients, those treated with FESS had associated lower rates of anxiety disorder compared to CRS patients not treated with surgery (17.5% vs. 21.3%, $p < 0.001$). The largest differences were observed in women (22.4% vs. 27.2%) and patients without polyps (18.8% vs. 22.5%). Rates were also reduced in older adults aged ≥ 50 compared to younger adults. Depression-related outcomes similarly favored the surgical group, with fewer associated diagnoses of depressive episode (13.0% vs. 15.4%) and reduced antidepressant use (22.7% vs. 26.3%; all $p < 0.001$) amongst the overall cohort. Conclusions: FESS was associated with lower rates of anxiety and depression in CRS, particularly among women, older adults, and patients without polyps.

13. An Evidence Based Review of Topical Treatments for Epistaxis in Hereditary Hemorrhagic Telangiectasia

Thomas Scharfenberger, BS; Michelle Kwon, BS; Ramzi Elased, BA; Monica Louka, BS; David A. Gudis, MD; Jonathan B. Overdevest, MD PhD

Educational Objective: At the conclusion of this presentation, participants should be able to equip clinicians with an evidence-based framework for selecting topical agents to control epistaxis in adults with hereditary hemorrhagic telangiectasia (HHT). **Objectives:** Compare the efficacy of intranasal therapies for HHT-associated epistaxis, using standardized instruments and objective hematologic measures. **Study Design:** Systematic review (PROSPERO-registered; PRISMA-compliant). **Methods:** We searched MEDLINE, Embase, CENTRAL, ClinicalTrials.gov, and WHO-ICTRP for English language studies enrolling adults older than 18 with definite/possible HHT that evaluated intranasal agents for epistaxis control. Three reviewers independently screened and extracted data in Covidence. Risk of bias was assessed with Joanna Briggs Institute (JBI) checklists and certainty of evidence with GRADE. Results were narratively synthesized following SWiM guidance. **Results:** Of 310 records, 19 studies met inclusion. Of these, 14 studies reported the Epistaxis Severity Score (ESS), most with follow-up of 3 or more months. Among agents evaluated, largest median changes in ESS (negative=improvement) were observed with bevacizumab (-3.0; n=62; range: -4.70 to -1.28), propranolol (-2.9; n=66; range: -4.99 to -2.03), and estrogen (-2.14; n=35; range: -2.92 to -1.36). Additionally, median Δ Hb was assessed in select studies with largest improvements observed with estrogen ointment (1.83; n=5) and propranolol gel (0.83; n=10). Notably, moisturizing gels used as placebo in multiple trials also resulted in improvement in ESS. **Conclusions:** Several local nasal agents demonstrate clinically significant improvements in HHT-related epistaxis by ESS (MCID = 0.71), but no therapy has emerged as the gold standard. The prevalence of epistaxis as a primary factor contributing to decreased quality of life in HHT highlights the need for alternative local treatments that minimize systemic exposure.

14. Allergy Testing and Its Effects on Medical and Surgical Management in a Multidisciplinary Rhinology Clinic
Aidan Hutchinson Vanek, BS; Alexandra M. Gach; Makanko Komara, MS; Isaac Kistler, MS; Tendy Chiang, MD FACS; Charles Elmaraghy, MD FACS

Educational Objective: At the conclusion of this presentation, the participants should be able to provide insight on a pediatric multidisciplinary rhinology clinic and its use of allergy testing to better determine patient care pathways. **Objectives:** Multidisciplinary care is a cornerstone in treating pediatric patients with complex sinus issues which include allergic, infectious, and anatomical components. The complexity can lead to prolonged diagnostic and therapeutic courses, therefore delaying symptom relief and quality of life improvements. We aim to provide further insight into a multidisciplinary approach in a rhinology clinic that allows patients to be seen by both an otolaryngologist and allergy specialist. **Study Design:** Retrospective chart review evaluating 285 pediatric patients who had their initial rhinology clinic visit between January 1, 2016, to December 31, 2023. **Methods:** Patient demographics, interventions prior to and post rhinology clinic visit, and allergy testing were recorded by reviewing the patient's electronic medical records. **Results:** Of this patient population with a median age of 9.9 (6.7, 13.8) years, 94% received skin prick allergy testing at their initial rhinology clinic visit, and 62% tested positive for environmental allergies. Between the positive and negative allergy test groups, a difference was apparent in post-clinic care with 61% of patients with no positive tests receiving surgery and only 52% of patients with allergic sensitization having surgery. **Conclusions:** Examining the post-visit treatment decision about surgery reveals that negative allergy test results are positively associated with rates of surgery. This suggests that allergy testing performed in conjunction with a patient's otolaryngology evaluation results in additional diagnostic information to help providers determine the plan and/or counsel the family when they are making their decision about surgery.

15. The Impact of Diabetes Mellitus on Long-Term Quality of Life After Sinus Surgery for Chronic Rhinosinusitis
Maryann Zhao, MD; Allen S. Zhou, MD; Ralph Metson, MD; Stacey T. Gray, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the effect of diabetes mellitus on long-term sinonasal symptoms and general quality of life in chronic rhinosinusitis patients who underwent endoscopic sinus surgery. **Objectives:** To evaluate the impact of diabetes mellitus on symptom burden and general health related quality of life in patients who undergo endoscopic sinus surgery (ESS) for chronic

rhinosinusitis (CRS). Study Design: Prospective observational cohort study. Methods: Patients with CRS completed the 22 item Sino-Nasal Outcome Test (SNOT-22) and EuroQoL 5 dimension survey (EQ-5D) preoperatively and at 3 months, 1 year, 2 years, 3 years and 4 years following ESS. Comparisons of SNOT-22 and EQ-5D scores by diabetes status were performed with t-tests and linear regression. Results: Among the 1307 patients enrolled in the study, 81 [6%] had diabetes. Both diabetic and non-diabetic patients experienced significant reductions in SNOT-22 scores from baseline at all postoperative timepoints (P less than 0.05), with no significant differences between groups at any followup interval. In contrast, EQ-5D scores were significantly higher in non-diabetic patients at baseline and all postoperative time points (all P less than 0.05). Among diabetic patients, significant improvement from baseline in EQ-5D was observed only at the 2 year followup, whereas non-diabetic patients showed consistent improvement at all timepoints. Conclusions: ESS is associated with sustained symptom improvement in patients with and without diabetes. However, patients with diabetes may experience attenuated gains in overall quality of life compared to non-diabetic patients, particularly beyond the second postoperative year. These findings support the utility of long-term monitoring and individualized counseling for diabetic patients undergoing ESS.

16. Longitudinal Nasal and Sleep Symptom Changes after Sublingual Immunotherapy Initiation for Allergic Rhinitis

Wynne Zheng, MA; Jolie L. Chang, MD; Anna Butrymowicz, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the impact sublingual immunotherapy has on allergic rhinitis patients through SNOT-22 subscores and RCAT score trends over 12 months. Objectives: To examine SNOT-22 and RCAT score trends in AR patients at baseline, 1-6 months and 6-12 months after SLIT initiation. Study Design: Retrospective longitudinal cohort study. Methods: Adult patients diagnosed with AR via skin or IgE testing who initiated SLIT were included. SNOT-22 and RCAT surveys were recorded at baseline, at 1-6, and 6-12 months following SLIT initiation. Changes in symptom scores were assessed between timepoints. Repeated measures ANOVA and Minimum Clinically Important Difference (MCID) thresholds were used to assess longitudinal symptom trends. Significance was set at $p < 0.05$ Results: A total of 36 adult patients (mean age 43.5 $\pm$ 12.9 years; 38.9% female) demonstrated mean SNOT-22 scores decrease from baseline (33.8 $\pm$ 17.7) to 1-6 months (24.4 $\pm$ 15.6), and to 6-12 months (19.0 $\pm$ 13.5). Repeated measures ANOVA confirmed a significant score decline from baseline to both 1-6 months ($p = 0.022$) and 6-12 months ($p = 0.002$). Mean score improvements were also significant for SNOT-22 subdomains: nasal, sleep, and functional symptoms at the 1-6 month timepoint. 47.1% of patients met MCID in SNOT-22 score at 1-6 months. RCAT scores also improved from baseline (19.8 $\pm$ 4.2) to 1-6 months (22.9 $\pm$ 3.2, $p < 0.001$), and 6-12 months ($p = 0.002$). Conclusions: SLIT was associated with significant and sustained improvement in both SNOT-22 and RCAT scores, including SNOT-22 nasal and sleep domains. Symptom improvements emerged as early as 1-6 months and persisted at 12 months, supporting the utility of SLIT in AR management.

17. Does Psychological Dysfunction Impact 5 Year Quality of Life Outcomes After Endoscopic Sinus Surgery?

Allen S. Zhou, MD; Maryann Zhao, MD; Stacey T. Gray, MD; Jennifer J. Shin, MD; Ralph Metson, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the role of psychological status on long-term endoscopic sinus surgery outcomes in chronic rhinosinusitis (CRS). Objectives: Psychological symptoms influence short-term ESS outcomes in CRS. Our objective was to assess the impact of psychological dysfunction on 5 year outcomes in a large cohort of ESS patients. Study Design: Prospective cohort study. Methods: CRS patients undergoing ESS were prospectively enrolled and completed 22 item sinonasal outcome test (SNOT-22) surveys preoperatively and postoperatively at 3 months and annually thereafter for 5 years. Patients were stratified into high and low psychological dysfunction groups based on the SNOT-22 psychological domain, and outcomes were compared. Results: Of 1307 patients enrolled, 694 were in the high psychological dysfunction (HPD) and 613 were in the low psychological dysfunction (LPD) cohort. Five year outcome data was available for 209 patients

in the HPD and 203 patients in the LPD group. Patients with HPD were more likely to be female and have a history of prior sinus surgery and headaches. Lund-Mackay scores were similar between groups (HPD 10.87 vs. LPD 10.88, $p=0.9762$). HPD patients had significantly higher SNOT-22 scores (61.6 vs. 33.0, p -value less than 0.001) at baseline. Both groups had significant improvement at each postoperative timepoint and similar relative improvement (HPD 46.2% vs. 44.9% at 5 years), although the HPD patients had significantly higher postoperative scores at 5 years (33.1 vs. 18.2, p -value less than 0.001) indicating greater symptoms. Conclusions: ESS provides long-term symptomatic benefit to both patients with high and low levels of psychological dysfunction. However, patients with HPD were found to experience significantly worse symptoms before sinus surgery and for up to 5 years postoperatively.

FACIAL PLASTIC AND RECONSTRUCTIVE

18. Outcomes in Patients with and without Osteonecrosis Undergoing Head and Neck Free Flap Reconstruction: A Retrospective Analysis

Adam Anthony Beucler, BS; Siddhant Tripathi, MD; Nicholas Hutchins, BA; Jack Garcia, BS; Abigail Haslinger, BS; Yash Patil, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the differences between patients that receive free flap reconstructive surgery for osteonecrosis of the jaw compared to patients receiving the surgery for other indications and compare outcomes between these two groups. Objectives: To evaluate surgical outcomes following head and neck microvascular reconstruction in patients with osteonecrosis of the jaw (ONJ) and compare them to patients undergoing reconstruction for other non-oncologic indications. We assessed perioperative characteristics, complication rates, and reconstructive success to better define the surgical risk profile of the ONJ population. Study Design: A retrospective review was conducted of patients who underwent head and neck microvascular reconstruction for non-oncologic indications between 2010 and 2024. Methods: Patients were divided into two cohorts: those with a diagnosis of ONJ and those undergoing reconstruction for other non-oncologic causes. Perioperative characteristics and postoperative outcomes were compared using Student's t-test, chi-squared test, and Fisher's exact test. Results: A total of 238 patients underwent microvascular reconstruction, of whom 71 had ONJ. The ONJ group was significantly older ($p<0.001$) and had a higher Charlson Comorbidity Index ($p<0.001$), but the two groups did not differ significantly by sex ($p=0.890$), BMI ($p=0.432$), or smoking history ($p=0.779$). ONJ patients were more likely to receive an osteomyocutaneous flap ($p<0.001$) and tracheostomy ($p<0.001$), while rates of gastrostomy tube placement ($p=0.308$) and neck dissection ($p=0.055$) were similar. Postoperative outcomes, including reoperation ($p=0.164$), flap failure ($p=0.321$), 30-day readmission ($p=0.397$), and 2-year survival ($p=0.270$), did not differ significantly between groups. Conclusions: Despite being older and more medically complex, patients with ONJ experienced comparable postoperative outcomes to those undergoing reconstruction for other non-oncologic indications. These findings suggest that free flap reconstruction is a safe and effective option in this challenging population, with no increased risk of major complications or failure.

19. "You're Wandering in the Dark": Patient Perspectives on Gender Affirming Facial Surgery Education and Resources

Laura Chen, BA; Nina Patel, MPhil; Connie Chang-Chien, BS; Seth Pardo, PhD; Andrea Park, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify 1) common resources used by patients to learn more about gender affirming facial surgeries; and 2) information gaps regarding gender affirming facial surgery. Objectives: Gender affirming facial surgery (GFS) has been found to improve quality of life and mental health in transgender patients. Despite increasing demand for GFS, no studies have assessed the patient perspective on GFS education or perceived information gaps. Study Design: Grounded theory qualitative study of 30 patients who underwent GFS at a single academic tertiary care hospital from 2016-2024. Methods: The authors designed a semi-structured interview template and preliminary codebook. Interviews were conducted from March to May 2025 (19 interviews by phone, audio recorded, and transcribed verbatim; 11 by email interview). Data

collection continued to thematic saturation, with no new themes emerging in final interviews. Braun and Clarke's six step process was used to perform thematic analysis and refine codes; consensus coding was performed by two coders from the research team. Results: Participant demographics were identified (age range 21-72 years, median age 50, 50% white, 56.7% Medicaid insurance). Four information sources were identified most commonly as helpful for learning about GFS before or after surgery: verbal information from the surgeon/clinical staff (17), websites (15), support organizations (8), and peers (8). Reported gaps (information patients wished they had) included accurate expectations of the surgical experience (11), availability of information on surgeons (6), peer anecdotes (4), and realistic expectations of post-surgical outcomes (4). Conclusions: Despite using a wide range of educational resources, patients in our study report unmet needs for accurate, comprehensive information about gender affirming facial surgery. These findings highlight a critical opportunity to develop educational interventions for patients that improve informed decision making in overall gender affirming surgical care.

20. Intraoperative Adaptation in Functional Open Septorhinoplasty: Evaluating Changes from the Preoperative Plan

Nomongo Dorjsuren, BA; Christina Dorismond, MD; Shiayin Yang, MD; Priyesh N. Patel, MD; Scott Stephan, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the common changes that occur between preoperative and intraoperative surgical plans in open septorhinoplasty and identify patient or exam factors that may predict these changes. Objectives: We aimed to assess the frequency of changes between preoperative and intraoperative surgical plans in open septorhinoplasty (OSR), and the factors associated with these changes. Study Design: Retrospective cohort study. Methods: Adult patients who underwent functional OSR between 2022 and 2024 were included. We extracted demographic data, exam findings, pre and postoperative quality of life (QOL) scores, preoperative surgical plans, and grafts used intraoperatively. Grafts were grouped as follows: spreader grafts, caudal/anterior septal reconstruction/support grafts, sidewall support grafts, and tip/alar support grafts. Changes in operative plan, defined as when a preoperatively planned graft was not performed or an unplanned graft was performed intraoperatively, were quantified by group type. We then compared preoperative variables between patients with and without changes in surgical plans. Results: The study included 70 patients, of whom 41 were males (58.6%) and 65 were white (92.9%). Changes in plan occurred for spreader grafts in 11 cases (15.7%), caudal/anterior septal reconstruction/support grafts in 29 cases (41.4%), sidewall support grafts in 23 cases (32.9%), and tip/alar grafts in 26 cases (37.1%). Absence of dynamic external nasal valve and static internal nasal valve collapse on exam was associated with changes in caudal/anterior septal reconstruction/support plan ($p=0.012$ and $p=0.026$, respectively). Moreover, abnormal tip rotation on preoperative exam was associated with intraoperative changes in tip/alar support graft plans ($p=0.017$) plans. Conclusions: Changes in surgical plan are more common with certain graft/technique types and are associated with key preoperative exam findings. Understanding these associated factors can help refine surgical planning and patient expectations.

21. Speech Outcomes in Patients with Veau II Cleft Based on Primary Surgical Technique

Amanda Ensui Du, BS; Nicole Mastacouris, MD; Craig W. Hanna, MD PhD; Andrew R. Scott, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the characteristics and outcomes of patients with a cleft of the soft and hard palate, classified as Veau II, based on primary surgical repair technique. Objectives: Cleft palate may present with varying degrees of severity. A Veau II cleft palate describes an incomplete cleft involving both the hard and soft palate. This study evaluates speech outcomes following palate repair based on surgical repair technique. Study Design: Retrospective chart review. Methods: Of 124 patients screened, 54 were identified to have a Veau II cleft. Patients with less than 2 years of postoperative follow-up were excluded. Statistical analysis was done using Fisher's exact test and multivariable logistic regression controlling for presence of syndrome or Robin Sequence (RS). Results: Within the study population, 37.0% of patients underwent Intravelar Veloplasty (IVV) and 63.0% underwent a Furlow repair (mean age = 14.4 months). Seven patients (13.0%)

developed a fistula, 28 (51.9%) had hypernasality in their early post operative follow-up, with 16 of all patients (29.6%) having persistent hypernasality after school speech therapy. Twenty (37.0%) required a secondary revision surgery for speech. Patients who underwent IVV were more likely to have persistent hypernasality after speech therapy (OR = 11.25, $p < 0.01$) and had higher rates of secondary revision (OR = 4.88, $p = 0.01$), regardless of syndromic or RS status. No association was found between the presence of syndrome or RS and surgical technique ($p = 1.00$, $p = 0.39$, respectively). Conclusions: Among a population of children with VEAU II cleft palate, patients who underwent IVV as primary repair had significantly higher rates of persistent hypernasality after school speech therapy compared to those who underwent Furlow palatoplasty, regardless of syndromic status.

22. Neighborhood Disadvantage Is Associated with Injury Complexity but not Post-Trauma Care in Orbital Floor Fracture Patients

Atif M. Islam, BS; Brandon J. Dyer, BS; Robert B. Baldwin, BA; Alec E. Dallas, BS; Ryan Hudnall, MD; Julia Toman, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize how greater social disadvantage, as quantified by the Area Deprivation Index, is associated with increased injury severity but not any downstream metrics of care in acute orbital floor fracture patients. These findings illustrate that social disadvantage have a greater influence on how patients are injured rather than how they are treated. Objectives: Social determinants of health are acknowledged as significant factors affecting trauma occurrence, severity, and outcomes. The Area Deprivation Index (ADI) is a validated tool that combines social determinants into a single measure of “neighborhood disadvantage”. The connection between ADI, injury severity, and other care metrics in facial trauma patients has not been fully examined. We aimed to investigate whether ADI was linked to initial injury severity and other clinical benchmarks for orbital floor fracture patients. Study Design: Retrospective Cross-Sectional. Methods: This study included 1335 patients with orbital floor fractures. Data on additional facial trauma, bodily polytrauma, length of stay (LOS), and follow-up attendance were collected. Patients were classified into a stable, urgent, or critical condition based on initial clinical presentation. Neighborhood socioeconomic disadvantage was evaluated using national percentile and state decile ADI. Analyses were conducted using Chi-Squared tests, Mann-Whitney U, Spearman rank correlations, and Kruskal-Wallis tests. Results: Among evaluable 1255 patients, ADI was significantly higher in patients with additional facial trauma (national ADI: 55 vs. 51, $p=0.0240$; state ADI: 7 vs 6, $p=0.0119$). However, ADI was not significantly associated with the incidence of bodily polytrauma, initial clinical acuity, or length of stay. 77.5% (973) were recommended for a follow-up appointment while only 38.5% (375) actually attended. Follow-up attendance rates did not differ by ADI. Conclusions: Social disadvantage was not associated with any downstream metrics of care including clinical acuity, length of stay, or follow-up attendance. However, ADI values were significantly greater in patients presenting with additional facial trauma. This may reflect different mechanisms of injury in high ADI areas. Future studies should investigate these mechanisms and other risk factors unique to high ADI areas.

23. Assessing Skin Tone Diversity in Instagram Posts Versus Reels Featuring Rhinoplasty Content Using the Fitzpatrick Scale

Jordan Kankam, BS; Victoria Garcia Rodriguez, BS; Jarrell Patterson, BS; Derek Nuamah, BS; Chrishaun Alexander, BS; Ernst Nicarnord, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe how the Fitzpatrick Scale can be used to assess skin tone representation in social media content and recognize the implications of underrepresentation of darker skin tones in rhinoplasty related posts for equitable patient care. Objectives: To utilize the Fitzpatrick scale to analyze darker skin tone representation in rhinoplasty-related content on Instagram. Study Design: Social media serves as a platform for showcasing rhinoplasty outcomes, often through before-and-after images. However, these images often underrepresent individuals with darker skin tones, raising concerns about diversity within rhinoplasty procedures. The Fitzpatrick Scale, a standardized tool for classifying skin tones, provides

an objective framework for evaluating how different skin tones are depicted. This study aimed to assess disparities in skin tone representation within rhinoplasty related content on Instagram using the Fitzpatrick Scale. Methods: A total of 1,000 Instagram posts were analyzed, with 200 posts collected from the first page of results under five hashtags. Each post was categorized by Fitzpatrick scale skin type: I-III (lighter tones) or IV-VI (darker tones). Two independent reviewers assessed each post's skin type, with disagreements resolved by a third reviewer. Posts were further assessed for media type, creator identity, and engagement metrics. Results: Of the posts analyzed, 873 (87.3%) featured individuals with lighter skin tones, while only 127 (12.7%) included darker skin tones. Most content was created by facial plastic surgeons (n = 717, 71.7%), followed by plastic surgeons (n = 163, 16.3%) and business accounts (n = 91, 9.1%). Conclusions: Our study shows individuals with darker skin tones were underrepresented in rhinoplasty related content on Instagram. To foster inclusivity and better reflect the diversity of patients seeking aesthetic procedures, surgeons and content creators should make intentional efforts to showcase outcomes across the full spectrum of skin tones.

24. Nasal Airway and Symptom Outcomes Following Rhinoplasty in Unilateral Cleft Lip Nasal Deformity

Yang U. Lee, BA; Jeffrey R. Marcus, MD; Dennis O. Frank-Ito, PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the functional impact of definitive rhinoplasty on nasal airway obstruction in patients with unilateral cleft lip nasal deformity (uCLND). Objectives: Up to 70% of individuals with unilateral cleft lip nasal deformity (uCLND) experience clinically significant nasal airway obstruction (NAO), often necessitating definitive rhinoplasty. However, the functional outcomes of these procedures remain undercharacterized. This study evaluates the impact of definitive rhinoplasty on nasal airflow and patient reported symptoms in adolescents with uCLND. Study Design: Prospective cohort study utilizing computational fluid dynamics (CFD) modeling and validated patient reported outcome measures (PROMs). Methods: Four adolescent patients with uCLND underwent pre- and postoperative computed tomography imaging. Patient specific CFD simulations were performed at 15L/min nasal inspiratory rate. Airflow metrics were quantified bilaterally and unilaterally; the side with greater baseline resistance was designated the more obstructed airway (MOA). PROMs included the Nasal Obstruction Symptom Evaluation (NOSE) and Standardized Cosmesis and Health Nasal Outcomes Survey Obstruction (SCHNOS-O). Results: Bilateral nasal resistance improved in patients 1 and 4 by 59% and 76%, respectively, and worsened in patients 2 and 3 by 34% and 59%. Despite bilateral variability, all patients demonstrated improved postoperative airflow and reduced resistance in the MOA (mean resistance improvement: 62%; range: 0-88%; airflow increase: 23% to 43%). PROMs showed patients 2 and 4 exceeded the minimal clinically important difference (MCID) for both NOSE (patient 2=25, patient 4=45, MCID=23.9+/-12.9) and SCHNOS-O (patient 2=30, patient 4=45, MCID=26.0+/-16.4). Patient 1 met MCID for SCHNOS-O but reported worsening NOSE score (NOSE=-10, SCHNOS-O=35). Conclusions: Definitive rhinoplasty may improve unilateral nasal airflow and patient-reported symptoms in uCLND, even when bilateral resistance changes are inconsistent. CFD combined with PROMs provides a robust framework for assessing functional surgical outcomes.

25. Technical Considerations for Simultaneous Facelift During Selective Facial Neurectomy for Facial Synkinesis

Richard Lu, MD MBA MSc; Victor Hsue, MD; Babak Azizzadeh, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the technical considerations involved with symmetric facial repositioning (i.e., simultaneous facelift) during selective facial neurectomy procedures Objectives: To evaluate technical considerations and clinical decision making in performing simultaneous selective facial repositioning (SFR) or facelift during selective facial neurectomy (SFN) for treatment of facial synkinesis and asymmetry, drawing upon the senior author's experience with modified selective neurectomy. Study Design: Retrospective case series. Methods: Patients included in this study underwent SFN with SFR or facelift from the primary surgeon's practice between January 2020 and July 2025. Patients were assessed for candidacy and desire for SF. Key operative parameters, including access points, tissue planes, buccal fat management,

and contralateral balancing strategies, were documented. Intraoperative nerve monitoring and modifications to traditional facelift technique were analyzed. Results: Of the 168 patients who underwent SFN, 86 (51.2%) elected to undergo simultaneous SFR or facelift. Facial aging in synkinesis patients was characterized by asymmetric midface descent, compensatory rhytids, and volume loss from hyperkinesis and disuse atrophy. Procedures followed a defined sequence safe nerve identification, efficient tissue handling, and optimal aesthetic symmetry: the SFN side was addressed first, with wide sub-SMAS and subplatysmal dissection and full release of cervicofacial ligaments to facilitate nerve access; the wound was then left open. Neck lifting followed with corset platysmaplasty and bilateral myotomy on both sides as well as submandibular gland reduction, deep neck fat excision, and digastric contouring, as needed. The surgeon then returned to the SFN side to complete the lift, using buccal fat decompression and suspension, crevasse suspension suturing, and platysma myectomy, typically using a 45-degree vector to efface the nasolabial fold. Finally, the contralateral side was addressed using extended deep plane dissection with standard cervicofacial ligament release, lifting with a typically more vertical vector (60 degrees), and buccal fat management that is typically asymmetric to the SFN side. Additional refinements included lip lift, autologous micro fat grafting, and laser resurfacing as indicated. Continuous intraoperative EMG monitoring aided in precise facial nerve identification and protection throughout. Conclusions: Simultaneous facelift during SFN offers significant aesthetic and functional benefits. Modifications to standard facelift technique are essential to accommodate altered facial anatomy, facilitate nerve access, and achieve optimal symmetry.

26. Screening for Ear Malformations and Deformities in a Large Tertiary Care Level IV NICU

Renate Ma, BS; Halle Kincaid, BA; Jennifer Check, MD; Katherine Gossett, MD; Candace Waters, MD; Cherrie Welch, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the incidence of congenital ear malformations in a large tertiary care level IV neonatal intensive care unit (NICU). Objectives: Implement monthly audits of NICU patients to identify infants with congenital ear anomalies. Identify and assess eligible infants for early non-invasive intervention using ear molds. Study Design: This prospective cohort study assesses the incidence of congenital ear anomalies in infants, 35 weeks corrected gestational age or older, hospitalized in a tertiary care level IV NICU. The ear anomalies identified through audits are then classified based on type, severity, and laterality. Methods: NICU patients who are 35 weeks corrected gestational age (CGA) or older are identified at the time of the audit. These patients' ears are then assessed by a facial plastic surgeon. Results: 17 patients were assessed and 70.6% (12/17) of these patients had at least one ear malformation. Of those who had an ear anomaly, 50% had malformation on one side only, while 50% had bilateral malformations. A total of 18 ear anomalies were identified, with the most common anomaly being a helical rim deformity (61.11%). 16.67% of the anomalies were Stahl's ear, 16.67% were cup ear deformities, and 5.56% of the anomalies were Prominauris. 77.8% of the anomalies were classified as mild and 22.2% were classified as moderate. The average CGA of this patient cohort was 39w4d. Conclusions: This study presents the incidence and the distribution of the types of ear anomalies observed from an audit performed at a level IV neonatal intensive care unit. The incidence of ear anomalies identified were higher than previously anticipated and warrants further investigation.

27. Artificial Intelligence Detects Age Changes in Patients after Facelifts

Mitesh P. Mehta, MD; Andee L. Fontenot, MD (Presenter); William Long, BS; Shervin Eskandari, BS; Georges E. Daoud, MD; David W. Chou, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe how artificial intelligence can be utilized in facial plastics to assess objective postoperative outcomes. Objectives: Standardized assessment of facelift outcomes remains challenging. Artificial intelligence (AI) facial recognition offers a promising approach for evaluating facial plastic surgery results and informing patient expectations, particularly by assessing postoperative perceived age changes. This study used Amazon Rekognition, a commercially available AI tool, to quantify age reduction in Instagram before-and-after facelift photos. Study Design: This study is a cross-sectional

analysis study. Methods: Public Instagram posts tagged #faceliftbeforeandafter were screened for side-by-side pre- and postoperative images. Eligible posts specified time since surgery and included frontal, lateral, or oblique views. Rekognition estimated perceived age for each image. To validate Rekognition's accuracy, 300 images of public figures with known ages were analyzed by the tool. Results: Among 255 posts, most featured female patients shared by otolaryngology trained surgeons in the United States. Postoperative photos were taken an average of 5.6 months after surgery. AI detected a significant reduction in perceived age (mean 4.1 years, 7.9%, $p<0.001$). Among 212 patients (83.1%) with apparent age reduction, the average decrease was 5.1 years (9.9%, $p<0.001$). Age reduction was consistent across image orientations and between international and domestic posts. Regression analysis showed a positive correlation between preoperative age and age reduction ($R^2=0.03$, $p=0.005$). In validating Rekognition as an age estimation tool, it demonstrated strong accuracy ($ICC=0.947$). Conclusions: Freely accessible AI identified significant reductions in post-facelift perceived age, underscoring its potential as a standardized and efficient tool to enhance patients' preoperative consultations.

28. Social Determinants Affecting Reconstruction after Gunshot Wounds to the Face

Ankita Nair, BS; Maxwell Duff, MD; Craig Ziegler, PhD; Marcus Bennett, BS; Elizabeth Cash, PhD; Skylar Trott, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to: Identify demographic and socioeconomic factors relevant to caring for patients sustaining gunshot wounds to the face; Understand the correlation between socioeconomic factors and surgical outcomes, including need for free flap surgery, death, and length of follow-up; Acknowledge how mental health history and the mechanism of injury can be used to anticipate a higher likelihood of patients needing free flap surgery. Objectives: Analyze the correlation between socioeconomic factors, operative care, and postoperative outcomes in patients with gunshot wounds to the face, head, and neck. Assess if mental health history and mechanism of injury are associated with different surgical outcomes. Study Design: This study was a retrospective chart review of patients who sustained a gunshot wound to the head, neck, or face and presented to our university hospital between 01/2013 and 12/2022. Socioeconomic variables analyzed included race, insurance status, zip code, median income, income class, and proximity to the hospital. Other predictor variables included psychiatric history, mechanism of injury, and type of firearm. Outcomes measured were if patients underwent surgery, the total number of surgeries, if patients lived, underwent flap surgery, and length of follow-up. Methods: 317 patients met inclusion criteria. Preliminary analysis was completed using Spearman Correlations. Results: Middle class patients were more likely than lower class patients to undergo free flap surgery ($p=.016$). Patients with self-inflicted gunshot wounds ($p=.003$) and prior psychiatric history ($p=.003$) were more likely to undergo flap surgery. For every 5-mile increase in distance from the clinic, the odds of follow-up decreased by 4% ($p=.013$). Uninsured patients followed up significantly fewer days than patients with private and public insurance (74 days vs. 261 and 306, $p=.029$). Conclusions: Surgeons must evaluate a patient's socioeconomic situation when determining treatment plans. Undergoing further surgery or having the ability to follow up depends on social factors like status, income class, and proximity. Accounting for mechanism of injury and mental health can help surgeons identify "at-risk" populations who may need flap surgery and have a lower likelihood of survival.

29. Comparative Outcomes of Surgeon Specific, Patient Specific, and Conventional Locking Reconstruction Plates Used During Microvascular Osseous Mandible Reconstruction

Nina R. Patel, MPhil; Aarti Agarwal, MD; Andrea Park, MD; Chase Heaton, MD; Mary Jue Xu, MD; P. Daniel Knott, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to compare clinical outcomes and complication rates among surgeon specific, patient specific, and conventional mandibular reconstruction plates and evaluate how plating technique, flap type, and defect location may affect surgical decision making and postoperative outcomes. Objectives: Mandibular free flap reconstruction requires stable fixation, commonly with surgeon specific plates (SSP), patient specific plates (PSP), or conventional unbent plates (UP). The

relative impact of plate type on complications remains unclear. This study seeks to compare clinical outcomes and complication rates associated with SSP, PSP, and UP used in osseous mandible reconstruction. Study Design: Single institution retrospective cohort of 181 reconstructions (2020-2025): SSP (n=61), PSP (n=58), UP (n=61). Methods: Data was collected on demographics, indication, defect site/size, flap type, plate size, prior/adjuvant radiation or chemotherapy, operative metrics, and complications (flap failure, infection/dehiscence, hematoma, fistula, plate extrusion, screw loosening, hardware failure, OR take back, revision). Results: Mean age 64.4 +/-14.4 years; 52% male. Indication was most commonly tumor (74%). Fibula flaps predominated (76%). Hemi mandible plates were used in 69% overall; full plates were more frequent in SSP (p<0.05). Reconstruction plates had 2.0 mm profile heights across the SSP, PSP, and UP groups. Mean operative time was longest with PSP (705 +/-113 minutes) vs SSP (662 +/-139) and UP (673 +/-108), however not significant (p=0.16). Length of stay was similar (9.6-9.8 days). Complications were comparable across groups: flap failure (6-7%), infection/dehiscence (3-13%), hematoma (3-7%), fistula (<=3%); no significant differences in plate extrusion, screw loosening, hardware failure, redo flaps, or revisions. Radiation exposure was common (history and/or adjuvant recorded across cohorts without imbalance). In univariate analysis, prior or adjuvant radiation was associated with a statistically significant increase in plate related complications (plate extrusion, screw loosening, hardware failure, revision) across groups. Conclusions: SSP, PSP, and UP demonstrated similar complication rates and clinical outcomes despite procedural differences. Plate selection may reasonably be guided by surgeon preference, patient factors (including radiation history), and institutional resources rather than expectations of improved outcomes by plate type alone.

30. Epithelial Preservation/Dermal Resection Microvascular (EPIDERM) Technique: Safety and Outcomes of Skin Grafted Free Flaps in the Head and Neck

Nina R. Patel, MS MPhil; Nicole Reynoso, BS; Aarti Agarwal, MD; Neil Patel, MD; Andrea Park, MD; P. Daniel Knott, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the EPIDERM technique, evaluate its safety profile compared to standard free flap reconstruction, and recognize its role in optimizing aesthetic outcomes in head and neck reconstruction. Objectives: While prior studies have demonstrated favorable aesthetic outcomes using skin grafted free flaps to improve recipient site color match (epithelial preservation including dermal resection microvascular technique: EPIDERM technique), the clinical safety of this approach has not been established. Manipulation of the skin paddle potentially impairs free tissue monitoring and therefore may affect success rates. This study aims to compare perioperative outcomes in patients undergoing head and neck free flap reconstruction with and without the EPIDERM technique. Study Design: A retrospective 1:1 matched cohort study was conducted involving 138 patients who underwent free flap reconstruction between January 2022 and December 2024 at a single tertiary care center. Methods: Patients were matched by flap type to control for variations in reconstructive technique and defect site. Data collected included demographics, defect characteristics, flap type, operative time, perioperative complications, reoperations, and hospital length of stay. Results: Defect distribution differed between groups, with scalp defects more common in the EPIDERM group (p=0.05) and oropharyngeal and mandibular defects more frequent in the standard group (p<0.01, p=0.02). Despite these differences in defect distribution, no significant differences were observed in flap viability, wound complications, reoperation rates, hospital readmissions, or length of hospital stay between the color match and non-color match groups. Conclusions: The EPIDERM technique represents a safe adjunct to head and neck free flap reconstruction, offering the potential for improved aesthetic outcomes with no apparent increase in perioperative risk or morbidity.

31. Racial and Ethnic Disparities in the Diagnosis and Management of Facial Nerve Disorders

Amy Wang, BA; Scott J. Stephan, MD; Priyesh N. Patel, MD; Shiyin F. Yang, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize racial and ethnic factors influencing diagnosis and management of facial nerve disorders. Objectives: Racial and ethnic disparities in facial nerve disorders (FND) have not been extensively studied. Study Design: TriNetX Database Study

using the US Collaborative Network Methods: Patients with a diagnosis of FND were identified using International Classification of Diseases (ICD-10) codes. Cohorts of Caucasian and non-Caucasian (Black, Hispanic, and Asian) patients were matched for age and sex. Data on demographics, comorbidities, and treatment was compared. Results: A total of 285,591 patients with a diagnosis related to FND were identified, of which 26.4% were non-Caucasian. After matching, Caucasian patients were found less likely to be diagnosed with FND compared to non-Caucasian patients (OR 0.804, $p < 0.0001$) at a rate of 6.6 versus 8.2 cases per 1000 patients. Non-Caucasian FND patients were also significantly younger at time of diagnosis (average 54.6 vs 61.4 years) and had a higher burden of type 2 diabetes and hypertension. As a whole, non-Caucasian FND patients were more likely than their Caucasian counterparts to experience health hazards related to socioeconomic and psychosocial circumstances at rates of 8.5% vs 6.0% ($p < 0.0001$). Notably, Caucasian FND patients received significantly more treatments with chemodenervation ($n = 1130$, OR 1.408, $p < 0.0001$) compared to non-Caucasian FND patients ($n = 806$). Conclusions: Non-Caucasian patients are more likely to be diagnosed with FND and experience medical comorbidities compared to Caucasian patients yet receive fewer chemodenervation treatments. Further research should seek to investigate the true incidence of synkinesis among different racial and ethnic groups.

GENERAL

32. **Post-Acute Transition with a Tracheostomy: Systemic Barriers to Durable Medical Equipment Access and Continuity of Care**

Noha A. Algahimi, BS; Jayme R. Dowdall, MD; Jana Wardian, PhD; Kristy Carlson, PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify barriers to quality care that exist in the transition period from acute to post-acute care for people with tracheostomies. Objectives: Highlight critical barriers that exist in the post-acute care of people with tracheostomies. Study Design: A retrospective observational study using electronic medical records (EMRs) and key stakeholder interview data was conducted to identify barriers that exist for post-acute care of people with tracheostomies. Methods: Data was collected using EMR review to inform questioning for stakeholder interviews. Findings were analyzed with descriptive statistics and qualitative methods. Results: EMRs of five adults with tracheostomies, ages 25-58 were reviewed. Three out of five were discharged home and four out of five were re-hospitalized due to tracheostomy-related issues within 90 days. Interviews with four hospital professionals, four post-acute care administrators, and one home healthcare company representative were conducted. Five major barriers to high-quality care were identified: frequent tracheostomy tube changes, sparse compatible care facilities, inadequate caregiver training, and inaccessibility of durable medical equipment (DME) necessary for home tracheostomy care. Specific to DME, stakeholders identified issues with manufacturing delays, accessibility due to geographic location, and supplies covered by insurance. For example, sterile water and saline are often not covered by Medicaid, leading people to utilize less expensive alternatives like distilled water, which is unregulated and may lead to infection due to improper use. Conclusions: We identified major barriers impacting post-acute care for people with tracheostomies, specifically highlighting inaccessibility to DME. These barriers may lead to rehospitalization and poor patient outcomes.

33. **Who Can Touch a Trach? Insights into Rural Prehospital Scope of Practice on Tracheostomy Emergencies**

Katherine Andersen, BS; Kayley Anderson, MPH; Joseph Lippert, MD; Jana Wardian, PhD; Jayme R. Dowdall, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand that tracheostomy patients in rural areas may not have access to licensed emergency medical providers. Objectives: Understand the scope of practice of prehospital providers, such as emergency medical responder (EMR), emergency medical technician (EMT), advanced EMT (AEMT), and paramedics. Better characterize the impact of rurality on access to emergency tracheostomy care. Study Design: Review of statewide scope of practice policies and staffing directories to compile comprehensive tracheostomy related scope of practice data across rural communities.

Methods: Utilizing practice guidelines on the Statewide Department of Health and Human Services website, the scope of practice was determined for the following: patient, caregiver, EMR, EMT, AEMT, and paramedic. Additionally, the total number of departments, further classified by rurality, and distribution of personnel by scope of practice were determined by publicly available emergency medical services (EMS) department rosters. RUCA index determined rurality. Results: In the state, EMRs are not allowed to touch a tracheostomy in any capacity. EMTs are only permitted to suction a tracheostomy and are not allowed to remove a PMV/cap or inner cannula. Paramedics are the only prehospital providers permitted to emergently change the tracheostomy tube. Of the 409 total departments within the state, 43% (n=177) have paramedics on the roster. Further, 71% (n=292) of these departments are rural, with only 38% (n=111) having a paramedic on the roster, compared to 56% (n=66) in urban areas. Conclusions: Scope of practice prevents many EMS providers from participating in tracheostomy emergencies. In rural areas, most EMS departments lack paramedics, and those with paramedics may only have one volunteer on their roster, leading to gaps in tracheostomy competent care.

34. Artificial Intelligence in Surgical Feedback: A Systematic Scoping Review

Patrick Barba, MD; Stephanie M Younan, BS MPH; Kimberley Luu, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the current landscape of AI-driven surgical feedback, including its demonstrated efficacy, existing limitations, and potential for future development. Objectives: Artificial intelligence (AI) is poised to transform surgical education, particularly in providing objective, scalable feedback. This study aims to systematically evaluate the current landscape of AI applications in delivering procedural feedback to surgical learners. Study Design: Systematic Scoping Review Methods: A systematic scoping review of literature published between 2015 and 2025 was conducted using search terms related to AI, surgical education, and feedback. Following PRISMA guidelines, studies were included if they detailed the implementation of an AI-based system for surgical or procedural feedback. Retrieved articles underwent title, abstract, and full text screening to determine final eligibility. Results: The initial search yielded 2,374 unique studies, with 18 meeting the final inclusion criteria. A risk of bias analysis revealed that twelve of these studies (67%) presented a moderate risk of bias. The included studies spanned multiple specialties, including general surgery (33%), neurosurgery (17%), and otolaryngology (6%). The efficacy of AI feedback was primarily assessed through performance metrics against expert benchmarks and subjective learner surveys. Analysis revealed that AI-driven feedback was found to be equivalent or superior to expert human instruction in simulation settings. While most studies (n=14) utilized post task feedback, real time AI models demonstrated the potential for faster error correction. The majority of studies focused on trainees (n=10), though AI was shown to be a valuable educational tool for learners at all skill levels. Five studies were randomized controlled trials, indicating a trend toward more rigorous study designs. Conclusions: AI represents a powerful and effective supplement to traditional surgical feedback methods. Future development, particularly for applications in otolaryngology, will depend on interdisciplinary collaboration to overcome barriers such as cost and user trust.

35. Characteristics of Otolaryngology Residency Programs Associated with Increased Matched Women Residents

Shreya R. Bhalla, BS; Adriana C. Diaz, BS; Diana S. Shaari, BA; Ariana L. Shaari, MD; Craig Bollig, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify characteristics of otolaryngology residency programs which are associated with an increased percentage of matched female residents and understand how these factors interact with each other to influence the gender composition of otolaryngology residency programs. Objectives: Gender disparities persist in surgical subspecialties, including otolaryngology, where women remain underrepresented among residents and faculty. While national efforts aim to promote equity, program specific characteristics that influence the recruitment of women have not been studied. This study evaluates the relationship between residency program attributes and the percentage of women matched into

United States (U.S.) otolaryngology residencies in the 2024 cycle. Study Design: Cross-sectional. Methods: Publicly available data from institutional websites were systematically extracted using a custom Python script for each of the 133 ACGME accredited otolaryngology residency programs in the U.S. Information including location, program type, number and gender of residents and faculty, program director (PD) and chair gender, fellowship offerings, visibility of parental leave policies on program websites, and national rankings (Doximity, USNWR, NIH funding) were compiled. The percentage of women matched into each program in 2024 was calculated. Multivariate regression models were used to analyze the relationships between program characteristics and women matched. Results: One hundred and twenty-four programs met inclusion criteria. Programs with more fellowship offerings ($p < 0.01$), greater resident numbers ($p = 0.02$), and a higher percentage of women faculty ($p = 0.03$) were associated with more women matched. However, other program characteristics, including PD gender, chair gender, or parental leave policy, did not significantly affect the percentage of women matched. Programs with higher NIH funding were correlated with having more women residents overall ($r = -0.3$, $p = 0.012$). Conclusions: Number of fellowship offerings, program size, and faculty gender composition appear to influence the percentage of women matched in otolaryngology residencies. Programs with more academic resources tended to have a greater proportion of women residents. Given these findings, programs should work to increase factors which promote equity to draw a more diverse resident cohort to the field of otolaryngology.

36. Investigating the Connection Between Meniere's Disease and Migraine and the Effect of Migraine Medication on Meniere's Symptoms

Khushi Bhatt, BS; Karen Tawk, MD; Marianne Rara, BS; Abigail Dichter, BA; Saharnaz Nedjat, MD PhD; Mehdi Abouzari, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the link between migraine and Meniere's disease (MD) and migraine medication's impact on MD symptoms. Objectives: To assess migraine and MD's connection, while considering migraine medication's impact on MD symptoms. Study Design: Retrospective cohort study of the TriNetX network between 2005 and 2025. Methods: Migraine patients from TriNetX were included in cohort A and split into subgroups At (patients taking migraine medications) and Ant (patients not taking migraine medications). Cohort B consisted of migraine free patients. The index date for subgroup Ant was defined as the date of migraine diagnosis, whereas for subgroup At it was date of simultaneous migraine medication usage and migraine diagnosis. The index date for cohort B was the date of their last healthcare appointment. Propensity score matching was performed between cohorts A and B and subgroups At and Ant. Diagnoses of MD, associated symptoms (vertigo, tinnitus, and hearing loss), and other comorbidities were recorded at index date and tracked five years post-index date. Risk ratio, risk difference, and odds ratio were calculated. Results: Cohort A demonstrated higher MD (OR=8.03, 95% CI [4.16, 4.50]) and associated symptoms incidence than cohort B. Subgroup At, at index date, had greater MD (OR=2.51, 95% CI [1.49, 4.22]) and vertigo (OR=4.01, 95% CI [2.01, 8.03]) incidence than subgroup Ant, but both subgroups had no difference in hearing loss (OR=1.06, 95% CI [0.91, 1.22]) and tinnitus (OR=0.93, 95% CI [0.85, 1.02]) incidence. Post-index date, MD (OR=3.01, 95% CI [1.82, 5.00]), vertigo (OR=5.02, 95% CI [2.55, 9.91]), hearing loss (OR=1.68, 95% CI [1.46, 1.95]), and tinnitus (OR=1.77, 95% CI [1.58, 1.98]) incidence increased in subgroup At compared to subgroup Ant. Conclusions: Migraine patients have greater MD incidence than non-migraine patients. Migraine patients taking migraine medications have greater incidence of MD and vertigo at baseline than migraine patients not taking migraine medications. The incidence of MD, vertigo, tinnitus, and hearing loss increases within five years post-index date amongst patients taking migraine medications.

37. Diagnostic Utility of Temporal Artery Biopsy in Giant Cell Arteritis

Adam A. Beucler, BS; Siddhant Tripathi, MD (Presenter); Josiah Brandt, MD; Peter Larson, MD PhD; Priscilla Pachardo, DO; Chad Zender, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the diagnostic utility of temporal artery biopsy (TAB) in suspected giant cell arteritis (GCA). The study evaluates the

incidence of histologically confirmed cases, with the goal of improving diagnostic accuracy, patient outcomes, and minimizing morbidity. Objectives: To determine the incidence of positive temporal artery biopsies among patients undergoing evaluation for giant cell arteritis and to identify potential clinical predictors associated with biopsy positivity. Study Design: Retrospective cohort study. Methods: Retrospective review of patients ≥ 25 who underwent temporal artery biopsy for suspected GCA (July 2018-July 2025). All biopsies were by otolaryngology. Data included demographics, symptoms, ESR/CRP, and pathology. Positive biopsies showed granulomas, giant cells, or elastic lamina disruption. Results: A total of 198 patients met inclusion criteria and underwent temporal artery biopsy (TAB) during the study period. Patients with a positive biopsy result were significantly older on average than those with a negative result (76 vs. 67 years). The overall rate of biopsy confirmed giant cell arteritis (GCA) was 22.4%. Although the erythrocyte sedimentation rate (ESR) was higher in the GCA-positive group compared to the negative group (60.1 vs. 51.0 mm/hr.), this difference was not statistically significant. In contrast, C-reactive protein (CRP) levels were significantly elevated in patients with biopsy-proven GCA (75.6 vs. 26.5 mg/L). Cutpoint analysis identified a CRP threshold of 57 mg/L, in combination with associated symptoms, as clinically meaningful for predicting a positive biopsy result (positive likelihood ratio [LR+] 4.48; negative likelihood ratio [LR-] 0.43). Among clinical features, jaw claudication demonstrated the highest specificity (75.3%) for GCA, while vision changes were the most sensitive symptom (81.8%). Conclusions: Temporal artery biopsy remains a valuable tool for confirming GCA; however, with a positivity rate of only 22.4%, careful patient selection is essential. Incorporating a CRP threshold of 57 mg/L alongside clinical symptoms may help identify patients most likely to benefit from biopsy. This approach can enhance diagnostic accuracy while minimizing unnecessary procedures.

38. Management and Outcomes of Pharyngeal Abscesses by Dental and Gingival Disease Status

Joseph Celidonio, MD; Lucy Revercomb, BS (Presenter); Aman M. Patel, MD; Andrey Filimonov, MD PharmD; Ghayoor S. Mir, DO; Ghayoor S. Mir, DO

Educational Objective: At the conclusion of this presentation, the participants should be able to better understand the impact of dental and gingival disease on the management and outcomes of inpatients with pharyngeal abscesses. Objectives: Our study investigates the role of dental and gingival disease (DGD) in the management and outcomes of inpatient pharyngeal abscesses (PAs). Study Design: Retrospective database study. Methods: The 2017 National Inpatient Sample (NIS) was queried to identify adult inpatients with a primary diagnosis of PA (ICD-10: J39.0-J39.1). DGD was identified (ICD-10: K00-K08). Univariate and multivariate analyses were performed to identify statistical associations with DGD status. Results: Of the 2,635 inpatients diagnosed with PA, the majority were male (58.6%), White (60.4%), and without DGD (90.1%). Mean patient age was 47.9 years. DGD patients had higher incidence of fluid and electrolyte disorders (28.8% vs. 22.7%) but lower incidence of hypertension (30.8% vs. 40.8%) and diabetes mellitus (13.5% vs. 22.1%) than non-DGD patients (p less than 0.05). On multivariable analyses, adjusting for patient and hospital characteristics, DGD patients had greater number of procedures undergone (NPU) (2.5 vs. 1.9 procedures) and odds for sepsis (OR 10.20, 95% CI 4.90-21.24), skin and subcutaneous tissue infection (OR 5.04, 95% CI 3.65-6.95), respiratory complications (OR 2.23, 95% CI 1.05-4.76), and respiratory failure (OR 2.20, 95% CI 1.37-3.54) than non-DGD patients (p less than 0.05). DGD patients had less time from admission to first procedure (TFP) (0.7 vs. 1.2 days) (p equals 0.015) but similar total charges (\$39,169 vs. \$50,466) and length of stay (LOS) (4.0 vs. 4.5 days) as non-DGD patients (p greater than 0.05). Conclusions: In inpatients with PAs, NPU, TFP, and odds for several complications varied by DGD status.

39. Assessing the Prevalence and Nature of Negative Workplace Interactions in Head and Neck Surgery

Patricia Cerri-Droz, BS; Christopher Vanison, MD; Alexander Bjorling, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the prevalence and patterns of workplace aggression experienced by head and neck surgeons. Identify surgeon and patient level factors associated with increased risk of hostile interactions. Objectives: Surgeons may be exposed to threatening

behavior from patients, families, and colleagues often in the form of verbal abuse or hostility. Recent incidents and survey data across specialties suggest this is a widespread issue. However, little is known about how this affects head and neck surgeons. This study aims to investigate the prevalence and patterns of aggression in this population and assesses related risk factors. Study Design: This was an anonymous, cross-sectional survey of American Head and Neck Society members, conducted in early 2025. Univariable and multivariable analyses were used to identify associations between surgeon characteristics and experiences with workplace aggression. Methods: The survey was distributed via REDCap and included items assessing demographics, practice characteristics, experiences with aggression, perceived triggers, aggressor characteristics, and opinions on training for managing hostile situations. Of 104 responses, 88 were analyzed; 16 were excluded for missing data. Statistical analysis was conducted using SPSS. Results: Nearly 60% of surgeons (52/88) reported experiencing hostile behavior: 16% once, 31.8% a few times (2-5), and 9.1% more than five times. On multivariable analysis, younger age (OR = 0.25, $p = 0.043$) and practicing in the West (OR = 1.93, $p = 0.003$) were significantly associated with higher odds of experiencing hostility. Female surgeons more frequently reported repeated incidents ($p = 0.040$). Commonly cited triggers included pain or pain medication issues (48.1%), bad or unexpected news (46.2%), and provider-family disagreements (48.1%), each significantly associated with verbal abuse or threats ($p = 0.05$). A history of psychiatric or substance use disorder was associated with prior dismissal from care ($p = 0.008$), but not with more severe behavior. Surgeons who felt personally at risk were significantly more likely to desire formal training to manage these encounters ($p = 0.001$). Conclusions: Unfavorable interactions experienced by head and neck surgeons are common, with risk varying by age, sex, and region, suggesting some physicians may be more frequently exposed. Surgeons who feel at higher risk are more likely to seek formal conflict management training, reflecting a perceived benefit from education in managing and preventing hostile encounters.

40. Artificial Intelligence Trends in Otolaryngology

Ryan R. Chen, BS; Eric Sokhn, MS (Presenter); Xuezhong Liu, MD PhD FACS

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss current the trends of artificial intelligence (AI) use in otolaryngology research. Objectives: AI is increasingly being incorporated into otolaryngology research and clinical care. The purpose of this study was to evaluate how AI use in otolaryngology has evolved over five years by analyzing poster presentations from the Combined Otolaryngology Spring Meeting (COSM). Study Design: Cross-sectional study. Methods: COSM online poster presentation archives from 2019 to 2023 were searched using the terms: “artificial intelligence”, “deep learning”, “machine learning”, and “natural language processing”. Resultant presentations were categorized by otolaryngology subspecialty and AI theme. Presenter demographics, including highest degree obtained and gender, were also collected based on information in the archive’s presenter biographies. Results: 52 AI related poster presentations were identified over the five year period. The most common themes included computational measurement from lab results and imaging ($n=9$), and AI supported diagnosis ($n=9$). The proportion of AI related posters increased from 0.91% in 2019 to 2.20% in 2023. Subspecialty diversity also grew, from 4 subspecialties in 2019 to 7 in 2023. Head and neck surgery, facial plastic and reconstructive surgery, and laryngology consistently contributed the most AI related papers. Over this period, female representation rose from 12.5% to 33%, and the proportion of non-MD presenters increased from 37.5% to 44.4%. Conclusions: There appears to be a growing presence of AI related research in COSM poster presentations. The range of subspecialties and diversity of presenters also appear to be increasing as AI research progresses.

41. Ultrasound Sialography with Air Contrast: Technique and Case Example

Caden D. Duffy, MD; Ifeanyichukwu C. Onuh, MS (Presenter); Henry T. Hoffman, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the clinical utility for use of air bubble infusion to improve visualization of the parotid intracavitary space when performing ultrasound based sialography. Objectives: To describe a technique with a representative case example

used to improve salivary ultrasound interpretation and to monitor the delivery of a therapeutic intraductal infusion. Study Design: Technical description supported by images from case report. Methods: Video overview of technique performed in December 2024 along with radiographic imaging and review of medical records. Results: 74 year old woman with Sjogren's syndrome who was experiencing sialadenitis with recurrent parotitis of the left parotid gland underwent ultrasound guided left parotid duct cannulation, dilation, and steroid insufflation. Previous fluoroscopic infusion sialography had employed iodinated contrast (Iopamidol) demonstrating duct irregularities and sialectasis with symptomatic improvement following contrast infusion. Recurrence of symptoms warranted repeated infusions employing triamcinolone (Kenalog-10) prepared through a dual syringe technique to simultaneously introduce air bubbles to assist with concurrent ultrasound gland evaluation. Using this method, we were able to easily visualize and document distribution of the steroid infusion throughout the ductal system. Conclusions: Air contrast salivary infusion enhances salivary ultrasound assessment and helps to guide the infusion process.

42. Going Down: A Descriptive Analysis of Elevator Related Head and Neck Trauma Presenting to U.S. Emergency Departments Using NEISS

Andrew Stephen Franklin, MD; Natalie Weiss, MD MBA; Samip Patel, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to 1) accurately describe the incidence and the mechanism of injury of elevator associated head and neck trauma; 2) identify the proclivity for elderly patients to endure head and neck trauma from elevators; and 3) understand how patient outcomes after elevator head and neck trauma differ across the lifespan. Objectives: As U.S. urbanization increases, elevator related injury becomes increasingly common. Head and neck elevator trauma remains under-characterized. This study examines the epidemiology, mechanisms, and outcomes of elevator associated head and neck injuries presenting to U.S. emergency departments (EDs) using a national database. Study Design: Retrospective cross-sectional analysis using data from the National Electronic Injury Surveillance System (NEISS). Methods: We queried the National Electronic Injury Surveillance System (NEISS) from 2015-2024 for injuries to the head and neck area involving elevators. Descriptive statistics were used to estimate national incidence, patient demographics, injury types, and disposition. Subgroup analyses assessed differences across age, race and gender. Results: Across the ten year sample, there were approximately 43,810 ED visits nationwide for elevator head and neck trauma. The average age was 63.1 (30.9), with slight majority (52%) of elderly patients (65 years and older). The cohort was majority Caucasian (65%) and male (62%). Elderly patients were more likely (25.2% vs 9.8%, $p < 0.01$) to require hospital admission/observation. However, patients < 65 experienced more fatalities (20 vs 6, $p < 0.01$) in the ED. Concussion/internal injury (49%), lacerations (16%), contusions (11%) and fracture (6%) were the most common injuries. Injuries occurred most often in public spaces (86%), compared to residence (11%), school (2%), and sports ($<1\%$). Conclusions: Elevator associated head and neck trauma is an under-recognized but relatively frequent reason for ED visits, particularly among older adults. A notable proportion of these required hospitalization. These findings highlight a need for greater clinical awareness of elevator related injury patterns and suggest potential roles for improved public safety design. Otolaryngologists and ED providers should be well equipped to recognize and manage these traumas.

43. Evaluation of Dysphagia in Patients with Obstructive Sleep Apnea: Diagnostic Patterns and Opportunities for Multidisciplinary Care

Sandhya Ganesan, BS; Sharwani Kota, BS; Sana Smaoui, PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the prevalence of dysphagia and diagnostic practice patterns in patients with obstructive sleep apnea (OSA) and discuss opportunities for multidisciplinary collaboration between otolaryngologists and speech-language pathologists to improve dysphagia care in this population. Objectives: To assess the frequency of dysphagia diagnosis in patients with obstructive sleep apnea (OSA), characterize the use of clinical and instrumental swallowing evaluations, and identify gaps in care contributing to underdiagnosis of unsafe swallowing in this population. Study Design: Retrospective

database study. Methods: A retrospective analysis was conducted using the TriNetX Research Network. Adult patients with OSA were identified using ICD-10 code G47.33. The prevalence of dysphagia (ICD-10 R13.1) and associated sequelae, including aspiration pneumonia (ICD-10 J69.0), were evaluated. Swallowing assessments were captured using CPT codes for clinical and instrumental evaluations (92610-92612). Results: Of 4,758,345 patients with OSA, 7% had a documented diagnosis of dysphagia. The majority were coded with unspecified dysphagia (85%), followed by oropharyngeal dysphagia (20%). Aspiration pneumonia occurred in 8.51% of patients with both OSA and dysphagia. Despite this, only 16.87% of dysphagic patients underwent formal clinical or instrumental swallowing assessment. Specifically, 15.76% received a video fluoroscopic swallow study (VFSS) and 1.52% underwent flexible endoscopic evaluation of swallowing (FEES). Diagnostic yield varied by modality: 79.15% of patients undergoing instrumental evaluation were diagnosed with dysphagia, compared to 42.11% with clinical evaluation alone. Conclusions: Dysphagia is underrecognized in patients with OSA, with most diagnoses made without formal assessment despite substantial aspiration risk. Instrumental evaluations significantly improve diagnostic accuracy but remain underutilized. These findings highlight the need for standardized, multidisciplinary screening protocols to improve the detection and management of dysphagia in the OSA population.

44. Rates of Emergency Department Visits and Readmissions in Adult Tracheostomy Patients within 30 Days of Discharge

McKenna L. Gervais, BS; Kayley Anderson, MPH; Heather Nichols, RRT; Jana Wardian, PhD; Elizabeth Lyden, MS; Jayme Dowdall, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify patient characteristics and modifiable factors contributing to emergency department visits and readmissions in adults post-tracheostomy. Objectives: Quantify rate of emergency department (ED) visits and readmissions within 30 days of discharge post-tracheostomy -- distinguishing between tracheostomy and non-tracheostomy related causes -- and to identify risk factors. Study Design: Retrospective cohort study of adult tracheostomy patients within system between April 1, 2018, and April 1, 2025. Methods: Review of electronic medical record gathering data on patient demographic variables and mortality. Fisher's exact test and Fine and Gray's subdistribution hazard modeling assessed associations with in-hospital death and risk of revisit. Results: Among 618 patients, 19.3% of patients (n = 119) died prior to discharge. Subsequent analysis focused on outcomes within 30 days of discharge. Of the 499 patients alive at discharge, 57 patients (11.4%) accounted for 68 ED visits, while 95 patients (19.0%) accounted for 101 readmissions. Of the 95 readmitted patients, 37.9% (n = 36) originated from the ED. ED visit resulted in readmission in 63.2% of cases. Most readmissions originated elsewhere (62.1%, n = 59). Most ED visits and readmissions were due to non-tracheostomy related complications. Emergent tracheostomy, revision tracheostomy, and discharge to home increased ED utilization (p < 0.001, p = 0.042, p = 0.017). Gastrostomy dependence and ventriculoperitoneal shunt presence predicted readmission (p = 0.005, p < 0.001). Primary language other than English increased ED revisits while Hispanic/Latino ethnicity was protective against readmission (p = 0.051, p = 0.049). Longer initial hospital stays reduced revisit risk for both ED (p = 0.017) and readmission (p = 0.025). Conclusions: Identification of risk factors for post-discharge hospital utilization can inform trajectory allowing for realistic discharge planning, improving outcomes while reducing healthcare costs.

45. Automating Sleep Study Data Extraction on Hypoglossal Nerve Patients Using Generative Artificial Intelligence: Proof of Concept Study

Andrew W. Liu, BA; Sara J. Yi, BS (Presenter); Zoe Z. Chen, BA; Soomin Myoung, BS; Christopher J. Ito, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the capabilities and limitations of generative AI tools in extracting structured clinical data from unstructured sleep study reports; utilize performance metrics to benchmark large language models in clinical data abstraction tasks; recognize the potential applications of AI assisted data extraction in sleep medicine and otolaryngology, particularly for streamlining hypoglossal nerve stimulator candidate evaluation and supporting clinical research. Objectives: Despite

the expansion of electronic health records, critical sleep medicine data remains siloed in free text and PDF formats. Sleep studies are particularly challenging to mine due to their unstructured, heterogeneous formats. We present a novel generative artificial intelligence (genAI) framework to automate abstraction of clinically relevant sleep study data. Study Design: Retrospective diagnostic accuracy study with a proof of concept design. Methods: 132 sleep study reports from adult patients evaluated for hypoglossal nerve implantations were extracted, deidentified, and analyzed. We tested two large language models (LLMs): GPT-4 (via a custom built Python based automated pipeline) and NotebookLM (via web interface). We engineered prompts to extract 12 sleep related data elements. Manual human abstracted values served as the gold standard. Performance was evaluated using accuracy, sensitivity, specificity, precision, recall, and weighted F1 score for each data element. Results: NotebookLM demonstrated superior performance across nearly all elements, reaching accuracies above 85% in 10 of the 12 elements, including total AHI (93.1%) BMI (91.6%), and age (89.3%). The GPT-4 pipeline exhibited a broader accuracy range (26.0% to 93.1%), performing best on nadir oxygen saturation (93.1%), age (89.3%), and BMI (86.3%), but enabled high throughput, automated data collection. Across both models, numeric data in structured tables yielded the higher accuracy, while narrative embedded or contextually interpreted metrics (REM/NREM AHI) posed challenges. Both occasionally erred with inconsistencies such as multiple thresholds (e.g. diagnostic vs CPAP titration AHI) or appended studies in one file. Notably, even scanned, low quality, or rotated PDFs were successfully parsed, reflecting robustness across real world document variability. Conclusions: This is the first study to benchmark genAI in a sleep surgery context and demonstrate feasibility in data extraction from real world sleep study data. LLM based abstraction offers scalable, high fidelity extraction that may replace manual review, enabling large scale data collection and improvement of workflows.

46. The Relevance of the Epworth Sleepiness Scale in Current Clinical Practice

Sospeter M. Machani, MS; Mason William, MD; Eric Adjei Boakye, PhD; Kathleen Yaremchuk, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to evaluate the clinical relevance and psychometric validity of the Epworth Sleepiness Scale in the context of today's diverse and digitally engaged patient populations, and to identify the need for revalidation. Objectives: The Epworth Sleepiness Scale (ESS), developed in 1991 to screen for excessive daytime sleepiness, remains a widely used instrument evaluating patients for hypersomnolence. It is used widely in patients with obstructive sleep apnea. However, the original validation population consisted of a small, demographically homogeneous group in Australia which may not be relevant to the population seen today in clinical practice. For many reasons, it is important to evaluate whether the ESS remains generalizable across current populations. Study Design: Narrative literature review. Methods: The original ESS study consisted of 120 participants and 40 controls. A literature review was conducted to identify studies evaluating the ESS's performance or revalidation in demographically diverse U.S. populations. Articles were identified through searches of PubMed, and EMBASE as well as manual review of references. Studies published in English from November 1, 1991, through April 15, 2025, were included. Results: Literature review revealed that while some U.S. based studies support the ESS's general psychometric reliability, differences in average scores and item interpretation have been observed across racial and ethnic groups. A large scale revalidation has not been conducted using a nationally representative, diverse population samples recognizing societal changes that have occurred since the ESS was originally developed. Conclusions: A total of 25 studies were reviewed. The ESS has shown overall validity in some clinical U.S. populations. In an era emphasizing patient centered care and inclusive measurement tools, revalidation of the ESS in diverse populations is needed to ensure its continued clinical relevance.

47. The Meta-Analysis Pandemic within Otolaryngologic Research

William Mason, MD; Jun Jin, PhD; Eric Adjei Boakye, PhD; Kathleen Yaremchuck, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to have an educated discussion regarding the current publishing trends in ENT related research and understand inherent errors present

within a Meta-Analysis study. Objectives: Clinical decision making within medicine has placed a large emphasis on evidence-based practices. Resultantly, there has been an importance placed on high quality peer-reviewed literature. Historically, it has been thought that Meta-Analyses are of a higher level of evidence than even randomized controlled trials, leading to a rise in their popularity. However, the quality of the meta-analysis is largely dependent on the quality of the included studies. This study was intended to examine recent trends in the publications of meta-analyses within the field of otolaryngology and examine how error may be propagated through these studies. Study Design: Comprehensive literature review and data modeling. Methods: A literature review was conducted to identify meta-analyses, systematic review articles, and randomized controlled trials published in ENT- related journals from 1991 until 2024. The total number of these articles was then totaled over time to determine the number of each published per year. This was then plotted against time to determine trends. Artificial data representative of a basic meta-analysis was then modeled. Various types of bias were then introduced into the data to examine the effects. Results: The number of meta-analyses and systematic review articles has drastically increased over time, with a marked increase beginning in 2008. Since that time, we see a 26-fold increase in number of meta-analyses published. In comparison, when looking at randomized control trials published over the same time period, there has been a 1.4-fold increase in the number of publications. Regarding bias, all three of the most common types of bias within a meta-analysis (bias propagation, publishing bias, and inclusion of skewed data) result in significant aberrations in the results. Conclusions: Within the field of otolaryngology, the number of meta-analyses and systematic reviews published in prominent journals has been increasing almost exponentially. In comparison, RCTs have been published at approximately the same rate since 2004. While a well-planned and designed meta-analysis is a powerful tool when evaluating multiple, high-quality studies published on a particular topic, we should be weary of making practice-changing decisions based on their results alone. Practitioners should be cautioned to evaluate the studies included within a meta-analysis with scrutiny and be mindful of significant biases and error propagation that can occur within a poorly designed study.

48. WITHDRAWN - Representation Matters: Demographic Concordance and Patient Satisfaction in Otolaryngology

Abigail G. McIntosh, BS; Artemis Markopoulos, MD; Julio A. Roque Buenrostro, MS; Katie L. Holland, MD; Mihir Bhayani, MD; Vanessa Stubbs, MD

49. Gender and Academic Rank Disparities in Trainee Assignment to Operative Procedures

Heather Danielle Merkouris, MD; Jeremy S. Ruthberg, MD; Eve P. Champaloux, MD PhD; Hannah Turbeville, MD PhD; Robbi Kupfer, MD; John Paul Giliberto, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to name factors affecting resident staffing decisions such as faculty rank and gender. Objectives: To assess factors driving resident assignment to operative cases. We hypothesized that faculty rank and gender would directly influence resident coverage. Study Design: A multi-institutional retrospective review of operative otolaryngology cases from 2021 to 2024. Anonymized surveys were disseminated to former chief residents assigning resident coverage during the study period to assess factors contributing to their decisions. Methods: Case log data collected from the electronic medical record were categorized according to subspecialty, faculty academic rank and gender. Analysis was performed using descriptive statistics and logistic regression. Results: Cases (n= 32,47) were staffed by residents 80% of the time. The cases of faculty ranked as full professors were more likely to be staffed than associate (OR 1.96, 95% CI [1.75,2.13], p<0.001) and assistant professors (OR 1.41, 95% CI [1.32,1.52], p<0.001). In univariate analysis, female surgeons' cases were more likely to be covered compared to male surgeons (OR: 2.13, 95% CI [1.33, 3.13], p<0.001). In multivariate logistic regression, when controlling for subsite, male surgeon cases were more likely to be covered at three major academic subsites (OR1: 2.49, 95% CI [1.66, 3.74], p<0.0001; (OR2: 1.91, 95% CI [1.22, 3.00], p=0.005), OR3: 2.27, 95% CI [1.41, 3.66], p=0.002). Head and neck cases were staffed significantly more often compared to other subspecialties (p<0.001). Of the 15 surveys collected, attending expectations influenced 80% of chief residents to staff clinics and 47% to staff operating rooms despite better educational opportunities. Resident seniority, case difficulty, case

experience, and availability were prioritized when assigning cases. Conclusions: Attending academic rank, gender, and subspecialty are correlated to resident case staffing. Understanding the current factors that affect staffing decisions is essential as otolaryngology embraces a culture shift towards competency based training.

50. The Medicalization of “Bad Breath”: The Power of Advertising in the Widespread Adoption of Listerine Mouthwash

Gillian Michaelson, BS; Glenn Isaacson, MD

Educational Objective: At the conclusion of this presentation, the participants will understand the advertising campaign and its controversies that launched the rise of Listerine mouthwash despite limited scientific support for its use, describe the later trials that investigated if it is a risk factor for oral cancer, and apply the lessons from this case example to today’s rampant, unsubstantiated medical discourse perpetuated on social media. Objectives: Although today Listerine is a common antiseptic mouthwash, its rise to prominence was driven by unsubstantiated claims in one of the 20th century’s most significant advertising campaigns. The goal of this study was to trace this advertising effort, the subsequent federal pushback, and the eventual publication of research on Listerine’s health effects. Study Design: This is a retrospective review of the literature. Methods: Review of early 20th century advertisements, news, and medical journals concerning use of Listerine mouthwash and of more recent literature examining its ongoing impacts. Results: Listerine mouthwash became a staple of U.S. households in the 1920s thanks to an aggressive advertising campaign by Lambert Pharmaceuticals. The campaign cultivated fears of social isolation due to bad breath by introducing the medical term “halitosis” into the public vernacular, thus elevating an inconvenience into a medical pathology. During this time, Lambert’s revenue rose from -\$115,000 to -\$8 million (1922-1929). These ads ran until a 1970s Federal Trade Commission (FTC) false advertising lawsuit. Beginning in the 1980s additional research was published supporting Listerine’s dental health benefits. In the 1990s otolaryngologists began investigating mouthwash as a risk factor for oral cancer with concerning early research, but multiple systematic reviews finding no independent association. Conclusions: Listerine mouthwash’s meteoric rise demonstrates the power of advertising to create and exploit medical fear, especially in the absence of vocal pushback from the scientific community. Recognizing the historical precedents and effectiveness of such campaigns is critical for providers to develop their understanding of how to interact with the conflicting, often false medical discourse rampant in today’s social media environment.

51. Association of Interdisciplinary Tracheostomy Team Presence with Member Knowledge, Role, and Practice Patterns

Parth Nakirikanti, BS; Madeline Baranek, BS; Ruth J. Davis, MD; Susan L. Thibeault, PhD CCC-SLP

Educational Objective: At the conclusion of this presentation, the participants should understand the effect of formal interdisciplinary tracheostomy teams on non-physician team member tracheostomy knowledge, role definition, and practice patterns. Objectives: To compare non-physician members of dedicated interdisciplinary tracheostomy teams (DITTs) on facility tracheostomy practice patterns, role perception, tracheostomy knowledge, and perspectives on tracheostomy management (TM) based on DITT presence at their institution. Study Design: Statistical analysis of survey results. Methods: An online survey was distributed nationally to registered nurses, speech-language pathologists, and respiratory therapists through professional networks, online boards, email lists, and postings. 23 items containing Likert scale, multiple choice, and select-all-that-apply formats assessed demographics, facility practices, TM familiarity, role perception, and TM effectiveness. Respondents were grouped by DITT presence. Independent t-tests were used to compare Likert scale means. Chi-squared or exact tests evaluated categorical data. Results: Of 296 participants, 63 had a DITT. The DITT group more frequently reported (both $p<0.001$) in-house competency programs and TM guidelines (57.1% and 77.8%) than the non-DITT group (31.3% and 46.3%). The DITT group reported more involvement in tracheostomy rounds ($p<0.001$), decannulation ($p=0.001$), and tube selection ($p=0.034$). A higher proportion of the DITT group reported having a defined TM role (81.0% versus 61.4%, $p=0.027$), effective overall management ($p=0.002$), and effective speech language pathology consultations ($p=0.009$). The most frequently reported barrier was limited allied staff knowledge (53.0%). Non-DITT respondents cited neglect of patient

specific factors (41.6%) more than the DITT group (25.4%; $p=0.019$). Overall TM (8.98 versus 8.38; $p=0.001$) and speaking valve (9.03 versus 8.38; $p=0.009$) mean familiarity scores were higher in the DITT group. Conclusions: DITTs are associated with greater self-reported role clarity, TM effectiveness, and TM familiarity in non-physician members.

52. Mapping Durable Medical Equipment Access for Tracheostomy and Ventilation

Karissa A. Nichols, BS; Kayley Anderson, MPH; Morgan Bintner, RRT; Teresa Rodriguez, RRT; Jana Wardian, PhD; Jayme R. Dowdall, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize how rurality impacts safe discharge planning and home management of complex airway patients. Objectives: This study explores the distribution of durable medical equipment (DME) companies for patients with tracheostomies and/or ventilators, aiming to identify patterns in service access statewide. Study Design: Key informant phone surveys assessed active DME companies statewide. Methods: DME companies were identified through hospital referral lists, discharge planning directories, and internet searches. Data collected included service radius, respiratory supplies, and ventilation types. Geographic information system (GIS) mapping visualized statewide DME coverage. Rural-urban status was classified using Rural-Urban Commuting Area (RUCA) codes. Results: Among 16 companies identified, 6 locations were closed; 50 active locations were surveyed. Of these, 22% ($n=11$) support invasive ventilation (average service radius 104.9 miles, range 50-250), 52% ($n=26$) serve tracheostomy patients (average service radius 80.6 miles, range 42.8-180), and 88% ($n=44$) offer noninvasive ventilation, such as CPAP/BiPAP (average service radius 72.4 miles, range 15.7-180). Among invasive ventilation locations, 18% ($n=2$) are rural (RUCA 4-10) and 82% ($n=9$) urban (RUCA 1-3). For tracheostomy, 46% ($n=12$) are rural and 54% ($n=14$) urban. Conclusions: Considerable geographic disparities exist in DME access for rural patients requiring tracheostomy and invasive ventilation. Surgeons should be aware patients may live over 1.5 hours from the nearest company capable of servicing their needs. The presence of a DME company does not ensure a specific location offers specialized supplies or equipment. Therefore, realistic discharge planning is essential to ensure care continuity and to reduce emergency department visits, hospital readmissions, and preventable complications.

53. Critical Appraisal of Randomized Controlled Trials in Otolaryngology Performed by Medical Students and Artificial Intelligence

Sofia E. Olsson, MD; Nicholas Del Mundo, MD; Raika Bourmand, MS; Fiza Baloch, BS; Nancy Jiang, MD

Educational Objective: At the conclusion of this presentation, the participants should better understand the role of AI technology in the critical appraisal of medical literature. Objectives: Critical appraisal of literature is a skill that physicians develop over time. The present study evaluates how well ChatGPT-4o appraises medical literature relative to medical students and its potential to aid learners. Study Design: This is a 3-arm crossover study comparing appraisal skills of medical students, AI, and medical students with AI assistance. Methods: The Laryngoscope was queried for the search term “randomized controlled trial” in 2024, yielding 12 studies with randomized controlled trial methodologies. Two medical students completed the Critical Appraisal Skills Programme (CASP) checklist for each study with or without AI. After a washout period, they re-appraised the articles with opposite AI usage roles. CASP was also completed by ChatGPT-4o alone. Two physicians evaluated the quality of all appraisals using a rubric. Students and evaluators completed a survey after data collection regarding their experiences. Results: Inter-rater agreement was excellent at 91%. Physicians correctly identified 31% of AI involvement. AI alone was significantly more likely to present inaccurate responses compared to students with AI ($P<0.001$) and without AI ($P<0.001$), however there was no significant difference between student groups ($P=0.09$). There was no significant difference between the groups in comprehensiveness ($P=0.50$) and quality ($P=0.52$) of responses. Students reported that AI-assistance reduced the time to complete their appraisals and improved understanding of the studies. Conclusions: ChatGPT-4o appears comparable to medical student critical appraisal in level of detail and perceived quality but presents inferior accuracy. Future research can investigate optimal use of AI to assist scientific critical appraisal.

54. Understanding Barriers to PROMs Implementation in Otolaryngology

Akansha Pandey, BA; Robin Lindsay, MD MBA; Allen Zhou, MD; Amanda J. Reich, PhD MPH; Wendy Williams, JD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand a variety of barriers that exist within each practice setting in the implementation of PROMs within otolaryngology subspecialties. Objectives: Patient reported outcome measures (PROMs) are commonly used to assess patients' subjective experiences of disease in both the clinical and research settings. However, the barriers to implementation of patient reported outcome measures (PROMs) within otolaryngology are not well understood. Our study objective is to qualitatively describe the perspective of otolaryngologists across various practice settings, time in practice, and regions of the United States to determine what barriers to PROMs implementation exist in otolaryngology and how these barriers may be addressed. Study Design: Qualitative interview study. Methods: Semi-structured interviews were conducted with 15 otolaryngologists across subspecialties, geographic regions (urban or rural), practice settings (academic or private), and time in practice. Participants were recruited via a snowball sampling methodology, until saturation was achieved. Interviews were recorded, transcribed, and analyzed using a thematic approach. Two independent coders reviewed interview transcripts to iteratively develop a codebook. Final themes were developed via consensus with the research team. Results: We identified differences in perceived barriers to implementation between otolaryngologists in academic settings as compared to private settings. Academic practices tended to focus on more patient level barriers, such as health literacy, time constraints, and language barriers. In contrast, physicians working in private settings had a greater focus on logistical barriers including financial constraints, concerns for reimbursements, and time constraints. Conclusions: Understanding the variety of barriers that exist within each practice setting will allow for further optimization of PROMs usage across clinical settings and subspecialties within otolaryngology.

55. Assessment of Social Vulnerability on Diagnosis, Treatment, and Outcomes of Adult Obstructive Sleep Apnea

Harrison P Smith, BA; Gemma Toogood, BS; Govind Bindra, MS; Alec Kadrie, BS; Boyd Gillespie, MD MSc; Anthony Sheyn, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how the Social Vulnerability Index (SVI) can be used to identify adult patients with Obstructive Sleep Apnea (OSA) who are at an increased risk for developing significant cardiovascular and metabolic comorbidities, thereby informing the need for targeted interventions. Objectives: Obstructive sleep apnea (OSA) is associated with reduced quality of life and long-term adverse outcomes. Examining the relationship between the social vulnerability index (SVI) and OSA outcomes for the pediatric and adult population is crucial for improving management of patients across diverse demographic groups. Study Design: Retrospective cohort analysis was conducted using the Enterprise Data Warehouse database containing patient data from 2014-2024. Methods: OSA relevant ICD-10 and CPT codes for ages 18-65 were queried. Extracted variables included SVI, polysomnography and CPAP procedures, complications, and time from OSA diagnosis to complication onset. Results: 59,375 patients aged 18-65. For adult patients, mean time from OSA diagnosis to CPAP initiation in the high-risk SVI quartile was 400 days and associated with a significantly shorter time to receive treatment ($p < 0.001$). Atrial fibrillation, myocardial infarction, cerebral infarction, heart failure, obesity and T2DM were proportionally higher in higher risk SVI groups. Low vulnerability patients developed Type 2 Diabetes Mellitus (T2DM) later following OSA diagnosis ($p < 0.001$). Conclusions: High SVI groups with OSA have an increased risk of a number of comorbidities compared to low-risk SVI groups. Time to OSA treatment following diagnosis did not differ between groups, which makes it less likely that these additional comorbidities are directly related to the underlying OSA. Nevertheless, increased comorbidities in high SVI groups highlight care gaps, emphasizing the need for targeted intervention for OSA management for better control of comorbid conditions in these high-risk patient groups.

56. Evaluation of Incidental Retropharyngeal Fluid Collection in an Anticoagulated Patient

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the importance of a multidisciplinary, imaging guided approach to incidental deep neck space fluid collections, particularly in patients with risk factors like anticoagulation. They should also be able to identify appropriate noninvasive imaging modalities and apply clinical judgment to guide safe and effective management and followup. **Objectives:** Incidental findings on head and neck imaging can pose significant diagnostic dilemmas, especially in patients with underlying risk factors. We present a case of an incidentally discovered deep neck space fluid collection, highlighting the importance of a multidisciplinary and imaging guided workup. **Study Design:** Case report. **Methods:** Examination of medical records was performed in August 2025. **Results:** A 40 year old female with a history of pulmonary embolism on apixaban underwent magnetic resonance imaging (MRI) of the brain for evaluation of worsening migraines, which incidentally revealed a 6.7 cm retropharyngeal fluid collection extending into the left carotid space and reaching the skull base. She denied dysphagia, fever, and recent trauma, and had no crepitus or airway compromise on exam. Non-contrast computed tomography (CT) of the neck demonstrated no rim enhancement suggestive of abscess. Given her anticoagulation status, CT angiography of the neck was performed and showed no active arterial extravasation. Following evaluation by otolaryngology, neurosurgery, and vascular surgery, she was deemed stable for outpatient management. At outpatient followup, a dedicated MRI of the neck with fast imaging employing steady-state acquisition (FIESTA) sequencing was ordered to assess for potential CSF communication. **Differential diagnoses** include subacute hemorrhage, lymphatic malformation, skull base osteomyelitis, and cerebrospinal fluid (CSF) leak. **Conclusions:** This case underscores the importance of noninvasive methods to evaluate an incidentally found deep neck space fluid collection. A structured, multidisciplinary approach combined with targeted imaging is essential to exclude life threatening conditions and guide appropriate followup, even in minimally symptomatic presentations.

57. Postoperative Titration Sleep Studies May Overestimate Hypoglossal Nerve Stimulator Efficacy

Ian L. Sunycz, DO; Ryan Ziltzer, MD; Ruifeng Cui, PhD; Edward Rojas, MD; Monika Freiser, MD; Chadi Makary, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to question if postoperative hypoglossal nerve stimulator titration sleep studies are the best method to assess for overall OSA efficacy. **Objectives:** Hypoglossal nerve stimulator (HNS) therapy is a commonly used treatment option for obstructive sleep apnea. Treatment efficacy is typically measured by the apnea-hypopnea index (AHI) at optimum voltage established during the postoperative multi-amplitude titration polysomnogram (tPSG). However, patients often end up using voltages that are different from their optimum voltage. This study investigated and compared the outcome of HNS based on the voltages used by patients after their titration study versus their optimal recommended voltage. **Study Design:** A single institution retrospective cohort study examining patients who underwent HNS implantation from March 2017-July 2024. **Methods:** Baseline demographics and pre and postoperative PSG and voltages were reviewed. **Results:** Out of 110 HNS implants performed, 44 patients (mean age of 62.8 years; 31.8% female) had followup data. At the postoperative tPSG, the average AHI at optimum voltage was 6.2 events/hr and the average overall AHI was 15.3 events/hr. Both were significantly improved compared to their preoperative average AHI of 31.5 ($p < 0.01$ for all). However, at their followup, patients were found to be using voltages that were significantly lower than their recommended optimal voltage (1.59 vs 1.77; $p < 0.01$). The corresponding average AHI for the voltages being used was 25.2 events/hr which was not significantly different than the preoperative AHI of 31.5 ($p = 0.082$). **Conclusions:** Patients who underwent HNS implantation are often using voltages that are significantly lower than recommended which corresponded to no significant AHI improvement from preop. This highlights the need for further postoperative evaluations and additional sleep studies.

58. Single Authorship Trends in High Impact Otolaryngology Journals: A Bibliometric Analysis

Grant Nicholas Thesing, BS; Aaron Tucker, MD; John Cyrus, MS; Daniel H. Coelho, MD FACS

Educational Objective: As the quality of evidence based research continues to evolve, authorship trends are expected to change in parallel. Single authorship analyses have not been used to characterize longitudinal trends in academic otolaryngology. **Objectives:** To characterize trends of single authorship in otolaryngology literature over the last three decades. **Study Design:** Bibliometric analysis. **Methods:** The Web of Science was queried for publications in first quartile impact factor otolaryngology journals between 1994-2024. Single author publications were identified via manual coding, and were analyzed by publication type, country of origin, open access status, and five year total citation accrual. Results were compared between decades, including 1994-2003 (D1), 2004-2013 (D2), and 2014-2023 (D3). **Results:** Out of 62,897 total publications in the study period, 4,322 (6.87%) were single author studies. The rate of overall single authorship significantly decreased across each decade (D1: 12.5%, D2: 6.6%, D3: 4.7%, $p < 0.00001$), as did the proportion of single author articles in 1999, 2009, and 2019 (3.7%, 2.69%, 1.1%, $p < 0.00001$, respectively). From 1999 to 2009 and 2019, the five year citation accrual of single author articles (3.69, 6.36, 16.23 citations per article, respectively) and multi-author articles (7.01, 9.89, 14.54 citations per article, respectively) both increased. Open access single author articles similarly increased from 1999 (2.9%) to 2009 (14.6%) and 2019 (32.1%). The USA published the most single author articles in 1999 (23 of 35) and 2019 (10 of 28); in 2009, the USA and Australia were tied (7 of 41). **Conclusions:** Single author articles have become increasingly rare and relatively more impactful over the past three decades of otolaryngology literature, which suggests a discipline wide increase in academic collaboration.

59. A Study of Otolaryngology Residency Match Outcomes from the National Residency Matching Program

Rohan Singh, BS; Akshay Warriar, BA; Evelyne Kalyoussef, MD; Kenneth Yan, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify trends and evaluate key predictors of matching success in the otolaryngology residency match from 2016 to 2024. **Objectives:** To identify trends and evaluate key predictors of matching success in the otolaryngology residency match from 2016 to 2024. **Study Design:** A retrospective cohort study using data from the National Resident Matching Program (NRMP) from 2016 to 2024. **Methods:** NRMP data from 2016 to 2024 were analyzed to assess trends in otolaryngology programs, positions, and applicants. Competitiveness was evaluated using the applicant-to-position ratio. Predictors of match success, including USMLE Step 2 scores, research productivity, Alpha Omega Alpha (AOA) membership, MD/PhD status, and medical school ranking were compared between matched and unmatched applicants. **Results:** From 2016 to 2024, the number of otolaryngology programs rose from 109 to 138, with available positions increasing from 304 to 382. Applicants also increased (370 to 513), raising the applicant-to-position ratio by 6.9%. Matched applicants had significantly higher Step 2 scores (255.2 vs. 247.8, $p < 0.001$), more research experiences (13.94 vs. 9.62, $p < 0.001$), and ranked more programs (13.52 vs. 6.68, $p < 0.001$). Research output grew at an annual rate of 11.9% ($p < 0.001$). AOA membership, MD/PhD status, and attending a top 40 medical school were not significant predictors of matching. **Conclusions:** Competitiveness in otolaryngology residency has intensified, driven by rising applicant numbers and research output. While Step 2 scores remain a reliable predictor, AOA status and MD/PhD degrees do not appear to influence match success. The increasing emphasis on research may incentivize quantity over quality, highlighting the need for programs to reconsider applicant evaluation metrics.

60. Medical School Factors Associated with Students Entering Otolaryngology Post Step 1 Pass/Fail Transition

Zach Yung, BS; Sydney Pompei, BA; James Okezie Onyeukwu, BS; Hannah Chen, MD; Christian P. Soneru, MD; Kathryn Noonan, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the impact of the Step 1 exam becoming pass/fail on otolaryngology residency application success. **Objectives:** We hypothesize that the transition of USMLE Step 1 exam to pass/fail (P/F) in 2022 has shifted the factors associated with a successful otolaryngology residency match, with increased emphasis on research productivity. **Study Design:** Retrospective cross-sectional study. **Methods:** Publicly available data for residents in ACGME-accredited otolaryngology programs

from the 2022-2025 match cycles (post-Step 1 P/F) was compared to a pre step 1 P/F cohort from 2017-2021. Analyzed variables include number of publications prior to start of residency, NIH funding, number of otolaryngology faculty, medical school and residency rankings, H-index, publication count, and program size. Univariate and multivariate analyses were performed to evaluate for associations between applicant and medical school factors that may be associated with match rate. Results: There are 1,361 residents included in the post-P/F cohort and 1,527 residents in the pre-P/F cohort. In the post-P/F cohort, we calculated an average of 7.44 publications and an H-index of 3.05 per resident prior to the start of residency, compared to 4.9 publications and an H-index of 2.3 in the earlier cohort ($p < 0.001$, respectively). Allopathic medical schools contributed an average of 8.52 residents over the study post P/F period (2.13/year), down from 10.5 (2.6/year) in the prior cohort ($p < 0.001$). Conclusions: The shift to pass/fail Step 1 may have led to increased emphasis on research metrics, potentially widening disparities. Ongoing analysis will help clarify evolving trends and inform policies.

61. Social Media Activity Related to Unproven Obstructive Sleep Apnea (OSA) Approaches -- AI Role in Medical Misinformation

Keer Zhang, BS; Felicia Xiao, BS; Eric Kezirian, MD; Lauran Evans, MD MPH; Atul Malhotra, MD; Aaron Boussina, PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the prevalence of unproven OSA therapies discussed on social media platforms and evaluate the role of artificial intelligence (AI) in detecting medical misinformation. Objectives: To assess the prevalence of unproven OSA therapies discussed on social media platforms and evaluate the role of artificial intelligence (AI) in detecting medical misinformation. Study Design: Cross-sectional observational study. Methods: Publicly available application programming interfaces (APIs) were used to extract OSA related content from Reddit and Bluesky. The first 2,000 posts from each platform were selected based on popularity, recency, and reputation ("hot", "new", and "top" in Reddit). OSA therapies mentioned within posts were identified and categorized using few shot prompting via OpenAI APIs (chat completion with 4o-mini). Unproven therapies were defined in a previous publication on this topic from a portion of the team. Unproven OSA therapies were evaluated by 1) two independent sleep medicine experts; and 2) automated evaluation via ChatGPT prompted with previously defined keywords of unproven treatments. The proportion of unproven therapies identified will be compared between the manual and AI based approaches. Additional analyses included authorship demographics, subject themes, engagement metrics, readability, and sentiment. Results: Data collection and analysis are ongoing. Conclusions: This study will help quantify the presence of OSA related medical misinformation on popular social media platforms. Findings will inform whether AI can serve as a reliable tool for identifying and potentially mitigating misinformation. Results may guide future strategies by clinicians.

62. Relative Impact of Sinonasal and Reflux Symptoms on Voice Handicap

Selena K. Zhang, BS; Christopher D. Dwyer, MD; Samantha E. Kridgen, SLP; Sana Alkhatib, MS; Thomas L. Carroll, MD; Jennifer J. Shin, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to determine which extralaryngeal factors are more associated with voice handicap: gastroesophageal reflux symptoms, sinonasal symptoms, or both. Objectives: To evaluate the relative impact of sinonasal and reflux related symptoms on voice handicap. Voice symptoms may arise from extralaryngeal causes such as sinonasal and reflux disease. When laryngeal inflammation is observed, it may be unclear whether inflammation is exacerbated by superior (sinonasal) or inferior (reflux) exposures. Study Design: Cross-sectional study. Methods: 169 patients from tertiary care and community health sites completed the validated Voice Handicap Index (VHI-10), Sino-Nasal Outcome Test (SNOT-22), and Reflux Symptom Index (RSI-9) instruments. Univariable and multivariable ordinal and logistic regression were performed to evaluate associations between scores. Results: The mean age was 62.6 years and was 76% female. Higher overall SNOT-22 scores were associated with greater voice handicap (OR 1.03 [95% CI: 1.02-1.05]) and increased odds of abnormal VHI-10 scores (≥ 11 ; OR 1.05 [1.03-1.08]). SNOT-22 scores also correlated with

higher reflux related scores (OR 1.09 [1.07-1.12]) and abnormal RSI-9 (≥ 13 ; OR 1.08 [1.05-1.11]). Nasal and allergy domain scores demonstrated stronger associations with reflux symptom burden (OR 3.52 [2.50-4.96] and 2.21 [1.63-3.00], respectively). In multivariable models adjusting for age and sex, however, it was RSI-9 scores which remained independently associated with both higher overall (OR 1.07 [1.03-1.11]) and abnormal VHI-10 scores (OR 2.75 [1.25-6.07]), while SNOT nasal and allergy domain scores were not associated with voice handicap. Conclusions: While both symptoms attributable to laryngopharyngeal reflux and sinonasal conditions correlate with voice handicap, reflux related scores are a more independent predictor. These findings suggest prioritization of reflux management when external origins of laryngeal inflammation are uncertain.

63. Impact of a Medical School Home Otolaryngology Program on Fellowship Subspecialization and Practice Type

Edmund Zhi, BS; Emma Kraus, MPH; Sarah Chang, MSc; Joshua Kim, BS; Ruby Nguyen, BS; Jessica Levi, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how attending a medical school with a home otolaryngology program may influence the likelihood of pursuing fellowship subspecialization and ultimately, working in an academic or private practice setting. Additionally, the participants should be able to recognize how different fellowship subspecialties are associated with varying trends in practice type. Objectives: To evaluate factors influencing otolaryngologists' career pathways, including fellowship choice and practice type. Study Design: Cross-sectional observational study. Methods: We reviewed alumni (2014-2022) from 131 U.S. otolaryngology residency programs listed in the AAMC ERAS directory. Data were extracted from program and hospital websites, Doximity, and ENThealth. Physicians with international training or practice, unverifiable practice, or unverifiable fellowship completion were excluded. Medical schools were categorized by the presence of a home otolaryngology program. Practice type was classified as academic, private, or community. Logistic regression and chi-square tests were performed in R. Results: Among 1,354 U.S. trained otolaryngologists, those from medical schools with a home program had higher odds of completing a fellowship (OR 1.43; 95% CI 1.02-1.99; $p=0.034$) and practicing in academia (OR 1.53; 95% CI 1.09-2.17; $p=0.014$). Fellowship training was strongly associated with academic practice (OR 5.81; 95% CI 4.49-7.57; $p<0.001$). Fellowship subspecialty also correlated with practice type ($p<0.001$): compared to facial plastics, head & neck (OR 4.9; 95% CI 3.19-7.63; $p<0.001$) fellows were more likely to practice in academia. Conclusions: Attending a medical school with a home otolaryngology program is associated with pursuing fellowship and academic careers. Fellowship subspecialty influences practice type, suggesting subspecialty choice shapes long-term career trajectories. These findings highlight the impact of early exposure and mentorship on career outcomes, informing career planning and advising.

HEAD AND NECK

64. Supraclavicular Artery Island Flap for Acquired Esophageal Injury Repair: A Multi-Institutional Case Series and Review

Hosam H. Alkhatib, MD; Claire Tolan, MD; Sameer Alvi, MD; Neel K. Bhatt, MD; Ghayoor S. Mir, DO; Zain H. Rizvi, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the use, advantages, outcomes of supraclavicular artery island flap for repair of acquired esophageal injuries. Objectives: The supraclavicular artery island flap (SCAIF) has emerged as a reliable fasciocutaneous flap for head and neck reconstruction. Reports of its utilization for repair of acquired esophageal injuries are limited. The objective of this case series is to report our experience using SCAIFs for esophageal injury repair. Study Design: This study is a multi-institutional case series. Methods: A retrospective review of five patients who underwent primary esophageal repair with SCAIFs between 2019 and 2025 from three institutions was performed. Esophageal injury etiology, defect size, and outcomes were recorded. Results: Etiologies of esophageal perforation and fistula included cervical spinal hardware erosion, esophageal instrumentation, and primary esophageal malignancy. Defect areas ranged from 6

cm2 to 8 cm2. Esophageal mucosal defects were repaired primarily with the SCAIF as a buttress to reinforce the suture line or as interposing segment in the repair. Following repair, three patients had no radiographic nor clinical evidence of fistula or leak and were started on an oral diet. In one patient, a short extraluminal sinus tract was noted but resolved without fistula formation. One patient developed a fistula requiring a return to the OR for debridement and wound vac placement. All patients had no evidence of fistula or leak on clinical follow up. Patients resumed oral intake between postoperative days 27 and 52. Two patients experienced postoperative dysphagia requiring use of enteric tube feeds to supplement oral intake. Conclusions: This report represents the largest case series to date describing the use of SCAIFs for repair of acquired esophageal injuries. SCAIFs are pliable, have reliable blood supply, require no microvascular experience and are associated with minimal donor site morbidity, representing a viable option in head and neck reconstruction including acquired esophageal injuries.

65. Improving Head and Neck Cancer Patients Understanding with 3D Printed Tumor Models

Joaquin Austerlitz, BS; Andreja Radevic, BS; Sindhura Sridhar, BS; Whitney Jin, BA; Michael C. Topf, MD MSCI

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the utility and feasibility of 3D printed tumor models to improve patient understanding of head and neck cancer pathology results and treatment. Objectives: Evaluate the impact of 3D tumor models on patients' understanding of their pathology report and treatment. Study Design: Prospective cohort study. Methods: Tumor specimens were scanned ex vivo using a 3D scanner and were then virtually inked, sectioned, and annotated using 3D graphics software alongside the pathology team. The data from eight patients are reported here. Twenty-five patients are targeted for total enrollment. The patient specific 3D tumor models were 3D printed and presented to patients during postoperative visits to explain their pathology results. Patients were surveyed after receiving their 3D tumor models regarding how helpful the model was to their understanding of the pathology report, their anatomy, treatment, surgery, and ability to ask questions. Survey responses were formatted as a slider bar ranging from "Did not help at all" to "Extremely helpful" which were then converted to a score out of 100. Results: All patients had squamous cell carcinoma for which they underwent either total laryngectomy (2), partial glossectomy (1), total glossectomy (1), scalp excision (1), mandibulectomy (1), or parotidectomy (1). Following counseling, 6/8 patients correctly recalled their margin status. When surveyed participants self-reported greatly improved understanding of their anatomy (mean 90.4) and tumor (87) from the model. Participants self-reported moderately increased understanding of their surgery (79.6) and adjuvant treatment plan (59.5). This overall subjective increase in understanding allowed patients to ask significantly more salient questions regarding their disease process (79.6) during their appointment. Conclusions: This ongoing study highlights the potential impact of 3D tumor models on head and neck cancer patients' ability to understand and participate meaningfully in discussion of their disease. These models offer an opportunity for physicians to better gauge patients' level of understanding of their disease and provide individualized patient-centered care. These findings demonstrate the potential of 3D tumor models to enhance patient-specific education and care.

66. Margin Heat Mapping of 3D Specimen Models in Head and Neck Surgery

Joaquin Austerlitz, BS; Andreja Radevic, BS; Sakshi Krishna, BS; Whitney Jin, BA; Sindhura Sridhar, BS; Michael C. Topf, MD MSCI

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the potential role and utility of margin heat mapped 3D tumor models as an ancillary resource in multidisciplinary head and neck cancer care. Objectives: Explore a proof of concept 3D tumor model digital annotation technique and its potential applications within head and neck cancer care. Study Design: Proof of concept study. Methods: A resection specimen from a head and neck cancer patient underwent 3D scanning followed by digital margin annotation (Blender 4.4, Stichting Blender Foundation) to create a heat map of margins. This specimen with varying margin status (close and negative) was selected to highlight potential applicability of 3D margin heat mapping. Final microscopic distances from invasive carcinoma on the specimen were recorded per standard of care. Distance to tumor was approximated

using a combination of the straight line distance to a weighted center point and the geodesic distance to each slice. These were then dynamically weighted to reflect both proximity to surface features and overall distance to the computed tumor “center”. The results were then denoted with a gradient color scheme with red denoting closer margins and blue denoting clearer margins. Results: One patient with pT4aN0 squamous cell carcinoma of the oral cavity underwent glossectomy and anterior mandibulectomy. Intraoperative frozen section analysis noted close but uninvolved margins in the anterior and anterior/right lateral areas. The permanent final pathology report confirmed that these two specimen based margins were the closest margins. 3D margin mapping provided greater visual clarity of involved anatomy by successfully denoting these areas while contextualizing the margins in relation to the specimen. This highlights situations in which 3D margin mapping may improve communication within a multidisciplinary team beyond a text format. Conclusions: Margin heat mapping of 3D specimen models is feasible and may enhance spatial resolution of tumor margins. This has several downstream cancer care implications including communication and understanding of the resection specimen by the multidisciplinary cancer care team and adjuvant radiation therapy treatment planning.

67. Cannabis Use Patterns Among HNC Survivors

Oluwatobiloba Ayo-Ajibola, BS; Albert Li, BS (Presenter); Tyler Jung, BS; Tyler Gallagher, MD MPH; Matthew Lin, MD; Niels Kokot, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to 1) describe patterns of cannabis use among head and neck cancer (HNC) survivors compared to other populations; and 2) identify the preferred methods of cannabis consumption among HNC survivors and how these differ from other groups. Objectives: Cannabis use may offer benefits such as pain relief and increased appetite but also carries an unknown risk for head and neck cancer (HNC). Understanding cannabis use behaviors among HNC patients is critical for targeted interventions and focused research. This investigation sought to characterize patterns of cannabis use and methodology among HNC survivors compared to other populations. Study Design: Cross-sectional analysis of the 2023 National Survey on Drug Use and Health (NSDUH), representing U.S. individuals aged ≥ 12 years. Methods: This cross-sectional study analyzed data from the 2023 National Survey on Drug Use and Health (NSDUH), with survey weighting used to create a representative model of the U.S. adult population. Patterns of cannabis use and views towards use were stratified based on history of HNC ($n=934,726$), other cancers ($n=16,287,507$), and the general unaffected U.S. population ($n=113,107,691$). A multivariable regression model was created to assess factors associated with the use of cannabis in the past year, controlling for demographics, cancer history, substance use history, and access to mental health services. Results: Compared to those without cancer, HNC survivors demonstrated significantly higher lifetime cannabis use (69.8% vs. 49.2%, $p=.003$) but lower recent (past 30 day) use (18.3% vs. 28.2%, $p<.001$). Similarly, compared to other cancer survivors, those with HNC reported higher lifetime use (69.8% vs. 54.7%, $p=.003$) yet lower recent use (18.3% vs. 23.2%, $p<.001$). However, when cannabis was used, HNC survivors reported significantly more frequent use annually (240 days/year) compared to both other cancer survivors (155 days, $p=.044$) and individuals without cancer (150 days, $p=.027$). HNC survivors preferred non-smoking methods, such as pills (15.4%) and sprays (17.6%), over smoking cannabis (22.3%), significantly differing from both comparison groups ($p<.001$). In multivariable logistic analysis, HNC history alone was not independently associated with recent cannabis use. Conclusions: HNC survivors exhibited a greater prevalence of lifetime cannabis use but lower recent use, favoring non-smoking methods. After adjustment, a history of HNC was not independently associated with past year cannabis use. These insights may support targeted, nonjudgmental substance use counseling in HNC survivorship care.

68. Risk of Post-Parathyroidectomy Hypocalcemia Associated with GLP-1RA Use: A Propensity Matched Cohort Study

Oluwatobiloba Ayo-Ajibola, BS; Albert Li, BS (Presenter); Tyler Jung, BS; Diego Razura, MD; Tyler Gallagher, MD; Matthew E. Lin, MD; Niels Kokot, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to evaluate the impact of preoperative GLP-1 and GIP receptor agonist use on the incidence of postoperative hypocalcemia in patients undergoing parathyroidectomy, and to understand the implications for calcium and vitamin D supplementation strategies in the perioperative period. **Objectives:** Recent studies suggest glucagon-like peptide receptor-1 agonists (GLP) and gastric inhibitory polypeptides (GIP) may contribute to chronic hypocalcemia. This study examines the association between GLP/GIP use and post-parathyroidectomy hypocalcemia risk. **Study Design:** Propensity score matched cohort study. **Methods:** In this propensity matched cohort study using the TriNetX platform, we identified adults (18+) with primary hyperparathyroidism who underwent parathyroidectomy from 2010-2024, excluding those with end stage renal disease or bariatric surgery. The intervention group had a GLP or GIP prescription 1 year before and after surgery; controls had no history of use. Propensity score matching controlled for demographics, diabetes, hypertension, BMI greater than or equal to 30, prior calcium, magnesium, or vitamin D supplementation, and preoperative PTH levels. Primary outcomes were hypocalcemia (serum calcium lesser than 8.5 mg/dL) and hypercalcemia (serum calcium greater than 10.4 mg/dL) at 0-1, 1-6, and 6-12 months postop. Post-match hazard ratios were reported using Cox models ($\alpha=0.05$). **Results:** Among 67,865 patients, 915 (1.35%) received a GLP or GIP. After matching, each cohort had 909 patients with no significant differences in preoperative PTH or calcium. At 0-1 month, GLP/GIP use showed a 44% lower hypocalcemia risk (HR 0.56, 95% CI: 0.41-0.76) and reduced calcium supplementation (HR 0.86, 0.77-0.97). No altered hypocalcemia risk was found at 1-6 or 6-12 months, and hypercalcemia risk was unaffected throughout. Although vitamin D deficiency risk increased (HR 1.43, 1.09-1.88), no corresponding rise in supplementation occurred. When stratified by GLP, those prescribed dulaglutide a year prior had the lowest hypercalcemia risk (HR 0.47, 0.31-0.71) compared to semaglutide (HR 0.59, 0.41-0.85) and liraglutide (HR 0.59, 0.36-0.96). **Conclusions:** GLP/GIP use history is associated with lower risk of short-term post-parotidectomy hypocalcemia, despite decreased likelihood of calcium supplementation. While hypercalcemia risk remained unchanged, these findings raise the potential need for targeted protocols to prevent over-supplementation.

69. Assessing the Progenitor Potential of Tracheal Perichondral Fibroblasts to Chondrocyte Depletion

Jared Bradshaw, BS; Zheng Hong Tan, MD PhD; Jazmin Calyeca, PhD; Tendy Chiang, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe a novel bi-transgenic mouse model for tracheal chondrocyte depletion and explain how severe chondrocyte loss can stimulate perichondral fibroblast differentiation into tracheal chondrocytes. **Objectives:** Perichondral fibroblasts (PcFb) are progenitor cells that have shown to differentiate into tracheal chondrocytes in response to chondrocyte death during airway reconstruction surgery in mouse models. It is currently unknown, however, if isolated chondrocyte death alone is sufficient to trigger PcFb-to-chondrocyte differentiation. Further understanding of this mechanism could help advance tracheal cartilage repair strategies, but there are currently no models available to study it. Here, we propose a bi-transgenic mouse model of chondrocyte depletion to evaluate the progenitor potential of PcFb. **Study Design:** We developed a diphtheria toxin (DT) bi-transgenic mouse model to induce chondrocyte death (Col2a1-Cre/iDTR). We examined the response to low, med, and high dose of DT. **Methods:** PcFb were assessed via the presence of fibrocartilage on histology and TUNEL assay was performed to assess chondrocyte viability after DT administration. **Results:** The animals tolerated all doses of DT as evidenced by minimal weight loss following DT administration. DT induction resulted in the elimination of chondrocytes within the tracheal cartilage. The high DT dose resulted in a 71.3% depletion of tracheal chondrocytes ($p<0.0001$) while low DT dose had 20.3% depletion of chondrocytes ($p=0.045$). Importantly, PcFb were only observed after high DT depletion dose, suggesting that chondrocyte loss can trigger PcFb to chondrocyte differentiation. **Conclusions:** We have developed a novel bi-transgenic mouse model to study chondrocyte repair that has achieved 71.3% depletion of tracheal chondrocytes. This has allowed us to establish that targeted severe chondrocyte depletion can activate the regenerative potential of PcFB, which could help advance tracheal cartilage repair.

70. Survival Disparities of Differential Expressed Genes in Head and Neck Squamous Cell Carcinoma

Educational Objective: At the conclusion of this presentation, the audience should recognize the biological correlation to the racial disparities in survival outcomes of the genes that were interrogated in this study. **Objectives:** In the U.S., African American (AA) patients experience a higher mortality from head and neck squamous cell carcinoma (HNSCC) compared to Caucasian patients. We performed a high stringency analysis ($q < 0.05$; $p < 0.001$) of differentially expressed genes between advanced staged (non-HPV) AA versus Caucasian patients in the TCGA. **Study Design:** Retrospective cohort study. **Methods:** All data groupings were controlled for age, gender, and HPV-negative status. Because of a small number of African American T1 and T2 tumors, only advanced stage disease was appropriate for analysis (T3/T4; stage III/stage IV). Kaplan-Meier and Benjamini-Hochberg (BH) analysis were used. **Results:** High TYW1B, a codon stabilizing gene, correlated with worse survival in AA versus Caucasian patients. RAG1 (which can be downregulated by NF Kappa B) was higher in the AA patients and portended poorer survival. PLA2G4C (an arachidonic acid release enzyme in eicosanoid metabolism) demonstrated higher expression in AA patients and correlated with worse overall survival as well. High gene expression of CD79A (part of the antigen presenting system) was higher in Caucasians and portended better survival in this cohort. There were other differentially expressed genes found that had no significant influence on survival. **Conclusions:** We identified 4 genes, from a series of differentially expressed genes on BH analysis, correlated with worse survival in advanced head and neck cancer in AA patients. Greater analysis of these genes and pathways to which they belong may be useful for a better understanding in head and neck cancer pathophysiology and race specific outcomes.

71. Exploring Factors Associated with Craniopharyngioma Prevalence

Ruiqi Cen, PhD MPH; Prasanth Pattisapu, MD MPH; Patrick C. Walz, MD

Educational Objective: To identify associations between social, economic, and geographic factors and craniopharyngioma prevalence. **Objectives:** Pediatric craniopharyngioma is a rare cranial base tumor with unknown pathogenesis and no identified risk factors. Prior pilot studies have identified geospatial clustering of craniopharyngioma. The objective of this investigation is to evaluate socioeconomic and geographic factors associated with craniopharyngioma prevalence. **Study Design:** Correlational research. **Methods:** Using the Healthcare Cost and Utilization Project state inpatient databases (HCUP SID) from 21 states with ZIP code data, we identified 358 patients with craniopharyngioma. Craniopharyngioma prevalence was calculated using the U.S. census. KIDS COUNT data were used to calculate distribution of demographic factors among the general pediatric population. Age at admission, median household income, and Child Opportunity Index 2.0 were extracted from the HCUP SID data. Levels of environmental factors were extracted from a national sample. Chi-square tests, Wilcoxon rank sum tests, and logistic regression were conducted to compare factors and assess their association with residence in high prevalence areas (prevalence $\geq$ median). **Results:** The proportion in large metropolitan areas was significantly lower among cases in high prevalence vs low prevalence areas (44.3% vs 63.1%). Cases of lower median household income were more likely to reside in high prevalence areas (OR=2.92, 1.76, 1.62, and 1.00 for the 1st - 4th income quartile). There was no dose dependent relationship between environmental exposures and craniopharyngioma prevalence. **Conclusions:** Lower median household income was associated with residence in high prevalence area. Crowding is unlikely to be a contributing factor as a low proportion of cases in high craniopharyngioma prevalence areas lived in large metropolitan regions. We suspect social determinants play a role in areas of relatively high prevalence. The mechanism is unlikely related to environmental exposures but will require future research.

72. Optimizing Endothelial Hydrogel Integration with Partially Decellularized Tracheal Grafts to Enhance Airway Revascularization

Olivia Boyan Chan, BS; Lumei Liu, PhD; Jazmin Calyeca, PhD; Tendy Chiang, MD

Educational Objective: At the conclusion of this presentation, participants will learn how cell density in endothelial cell-laden hydrogels (EH) impacts graft neovascularization and advances strategies for tracheal transplantation.

Objectives: Restoring a functional blood supply remains a major challenge in tracheal reconstruction. Our preliminary data demonstrated that endothelial cell-laden hydrogels (EH), under a selected condition, enhanced vessel branching during microvascular regeneration in partially decellularized tracheal grafts (PDTG). We now aim to optimize EH integration with PDTG by identifying the seeding density of mouse lung microvascular endothelial cells (MLMEC) that maximizes endothelial cell attachment while maintaining graft patency. **Study Design:** Endothelial hydrogels, mouse trachea, ex vivo. **Methods:** PDTG were engineered from mouse trachea. EH were composed of MLMEC suspended in 1.25 mg/ml collagen at densities of 0, 3.6x10⁴, 3.6x10⁵, 3.6x10⁶, and 1.8x10⁷ cells/cm² PDTG surface area (n=4/group). EH were seeded in PDTG intraluminally. After 7 days in endothelial growth medium, graft patency was assessed, and immunofluorescence staining was performed for nuclei (DAPI) and MLMEC (lectin-FITC). Grafts were cut open longitudinally and mounted on slides. Endothelial cell retention was assessed using whole-mount confocal imaging and ImageJ. **Results:** EH successfully delivered and retained MLMEC on PDTG. EH integrated with PDTG without compromising graft patency. Seeded MLMEC displayed normal morphology and homogenous distribution on PDTG. MLMEC retention was higher at seeding densities of 3.6x10⁵, 3.6x10⁶, and 1.8x10⁷ cells/cm² compared to no-cell control (p=0.0076, 0.0011, 0.0343). The 3.6x 10⁶ cells/cm² group demonstrated greater cell attachment than the 3.6x10⁴ cells/cm² group (p= 0.0441). **Conclusions:** A density of 3.6x10⁶ MLMEC/cm² optimized endothelial cell integration with PDTG. This work provides a critical foundation for studies aiming to enhance neovessel formation and perfusion in airway transplantation.

73. Parascapular Free Flap in Head and Neck Reconstruction: A Pictorial Essay

Katherine Chrisbacher, BS BFA; Caitlin Deffler, BS; Craig Bollig, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the surgical technique and clinical advantages of the parascapular free flap (PFF) in head and neck reconstruction. **Objectives:** To provide a technical overview of the procedure, highlight its reconstructive advantages, and review literature to compare outcomes with other commonly used soft tissue flaps. **Study Design:** Literature review and pictorial essay. **Methods:** A literature review was performed for flap analyses that included the PFF. We describe the anatomy and operative technique of the PFF through medical illustrations and de-identified patient images. Cases in parotid, pharyngeal, and oral cavity reconstruction are presented. **Results:** The parascapular free flap allows for significant customization based on the reconstructive needs of the patient, and it is an excellent option for a variety of cutaneous and mucosal defects. It also provides excellent contouring capabilities as a buried vascularized fat graft, most commonly in parotidectomy defects. A volumetric analysis of 276 patients reported that parascapular flaps had the highest rate of ideal volume match among the commonly utilized donor sites. Comparative studies have reported that it has less donor site morbidity than anterolateral thigh or radial forearm free flaps and the highest patient satisfaction rating. **Conclusions:** Although underutilized nationally, the PFF is a safe, reliable, and aesthetically favorable option that should be considered in head and neck reconstruction. This pictorial essay aims to increase awareness of the flap and provide a clear, image guided reference for surgeons unfamiliar with the technique.

74. Gender and Survival in Oropharyngeal Squamous Cell Carcinoma: A Systematic Review and Meta-Analysis

Warren B. Chun, MD; Neeti Gandra, BA (Presenter); Kaiwen Chen, BS; Shaun A. Nguyen, MD; Madelyn N. Stevens, MD; Alexandra E. Kejner, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the impact of gender on survival outcomes in oropharyngeal squamous cell carcinoma (OPSCC) and recognize geographic variations in these trends. **Objectives:** Sex/gender differences in cancer survival rate are well established but understudied in oropharyngeal squamous cell carcinoma (OPSCC). This paper aims to evaluate the impact of gender on OPSCC survival outcomes, with a focus on geographic variation. **Study Design:** Systematic review and meta-analysis. **Methods:** A systematic review through June 2025 identified studies reporting multivariable Cox regression hazard ratios comparing OPSCC survival between genders. Studies were conducted in the United States (n=46) and

internationally (n=37), including Europe, Asia, South America, Canada, and Australia. Meta-analyses were conducted to assess hazard ratios, proportions, and means, and to evaluate survival differences between male and female patients. Results: Eighty-four studies (N=450,361) were included. Most patients were male (80.8%) with a mean age of 59.9 years. HPV-positive OPSCC was more prevalent in the United States (73.8%) than internationally (44.0%, $p < 0.0001$). U.S. males demonstrated significantly better overall survival (OS) (HR = 1.13 [1.07-1.19]) and cause specific survival (CSS) (HR = 1.11 [1.01-1.21]) compared to U.S. females. In contrast, international females had better OS (HR = 0.86 [0.77-0.95]) and CSS (HR = 0.63 [0.43-0.92]) than their male counterparts. No significant gender based differences were observed in recurrence free, disease free, or progression free survival. Conclusions: Gender significantly influences OPSCC survival, with opposite trends between U.S. and international populations. These differences may be partly attributable to underlying disparities in HPV status distribution, as HPV-positive disease carries a markedly better prognosis than HPV-negative disease. Future research should stratify data by both gender and HPV status to better understand the biological, behavioral, and sociocultural contributors to survival disparities and guide more tailored interventions.

75. The Forgotten Disease in the Modern Era: Clinical Patterns and Therapeutic Considerations of Lemierre Syndrome

Michael A. Cirelli, BA; Brent A. Chang, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the clinical presentation, diagnosis, and management of Lemierre syndrome, with emphasis on the role and controversy of anticoagulation therapy and interpret outcome differences between prophylactic and therapeutic anticoagulation strategies based on retrospective cohort data. Objectives: Lemierre syndrome is a rare, life-threatening thrombophlebitic complication of oropharyngeal infection classically characterized by septic thrombophlebitis of the internal jugular vein (IJV) by *Fusobacterium necrophorum*. While empiric antibiotics are the mainstay of treatment, the role of anticoagulation remains controversial. This study describes the clinical features and outcomes of the “forgotten disease” and compares outcomes between prophylactic and therapeutic-dosed anticoagulation. Study Design: Retrospective chart review. Methods: We conducted an i2b2 (version 1.8.1) query to generate a report of all patients diagnosed with combinations of ICD-10 codes for “phlebitis”, “neck abscess”, and “tonsillitis” at our institution between 2015-2025. Results: From the initial cohort of 385 patients, 16 met criteria for Lemierre syndrome. Classic IJV thrombophlebitis caused by *Fusobacterium necrophorum* was observed in 5/16 patients. Thrombosis of other named head and neck veins occurred in 5 patients. ICU admission was required for 3 patients. IJV ligation was performed for 1 patient. Clinical improvement with antibiotic therapy occurred in 12/16 patients, with 2 patients requiring subsequent hospitalization for recurrent infection or septic pulmonary emboli, and 2 deaths. Radiographic follow-up demonstrated complete thrombus resolution (3/7), stable thrombus (2/7), partial thrombus resolution (1/7), and increased thrombus (1/7). Patients receiving therapeutic anticoagulation had longer hospital stays, higher c-reactive protein levels, and similar sequential organ failure assessment (SOFA) scores compared to those receiving prophylactic doses. Conclusions: Empiric antibiotics with prophylactic anticoagulation generally yield favorable clinical outcomes regardless of radiographic thrombus resolution. Therapeutic anticoagulation use was associated with greater illness severity but benefit remains uncertain, suggesting treatment decisions may be influenced by overall medical complexity.

76. Preservation of Laryngeal Mucosa and Reconstruction of Thyroid Cartilage with Titanium Mesh in Advanced Papillary Thyroid Carcinoma

Anna Christina Clements, MD; Cassie Pan, MD; Neel Bhatt, MD; Mara Roth, MD; Brittany Barber, MD MSc; Emily Marchiano, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe utilization of titanium mesh for reconstruction of laryngotracheal cartilage in advanced thyroid malignancy with preservation of laryngeal mucosa and function. Objectives: Titanium mesh has been utilized for thyroid cartilage reconstruction

after partial laryngectomy for glottic cancer. This is the first report of thyroid cartilage reconstruction with titanium mesh for advanced papillary thyroid carcinoma (PTC) with preservation of laryngeal mucosa and function. Study Design: Case Report Methods: Retrospective review of one patient's electronic medical records, including provider notes, imaging, pathology, and intraoperative reports. Results: A 52-year-old female presented for management of recurrent PTC after total thyroidectomy and central neck dissection, during which the thyroid was noted to be adherent to the larynx. Postoperative imaging showed a 5.4cm mass invading the left thyroid cartilage with extension into the visceral space of the supraglottic larynx. She underwent bilateral neck dissection, partial laryngectomy with left recurrent laryngeal nerve sacrifice, and tracheostomy. The left thyroid cartilage was resected via midline laryngeal fissure without violation of the uninvolved laryngeal mucosa. The left thyroid ala was reconstructed with 0.3mm titanium mesh, which was secured to the right thyroid ala with 1.2mm self-drilling screws and the underlying laryngeal mucosa with 5-0 Prolene sutures. Final pathology showed a 3.3cm classic variant PTC, thyroid cartilage with negative margins, and 5/30 positive lymph nodes. Postoperatively, she transitioned from a feeding tube to regular diet, underwent successful left vocal fold injection augmentation, and decannulated her tracheostomy. Conclusions: Laryngotracheal invasion of PTC typically occurs at the cricotracheal level and is most commonly treated with circumferential resection and primary anastomosis. Thyroid cartilage invasion by PTC, as in our patient, is rarely seen and requires partial or total laryngectomy to achieve oncologic resection, often with significant compromise to voice and swallow function. This report is the first to describe thyroid cartilage reconstruction using titanium mesh in a patient with thyroid malignancy with preservation of the laryngeal mucosa and resulting excellent voice, swallow, and breathing outcomes.

77. Predictors of Oral Mucositis Incidence and Severity in Head and Neck Cancer Patients: A Systematic Review and Meta-Analysis

Madeline Dansky, BS; Srivatsa Surya Vasudevan, MD; Matthew Vance, BS; Stephanie Provenzano, BS; Cherie-Ann O. Nathan, MD FACS

Educational Objective: At the conclusion of this presentation, the participants should be able to know the primary predictors associated with developing oral mucositis in radiation and chemoradiation in the HNC population. Objectives: To systematically evaluate predictors associated with the incidence and severity of oral mucositis in patients undergoing radiation therapy (RT) with or without chemotherapy (CT) for head and neck cancer (HNC). Study Design: Systematic review and meta-analysis. Methods: PubMed, Web of Science, Embase, and ScienceDirect were searched for studies published from 2000 to June 2025 reporting clinical and treatment-related predictors of oral mucositis incidence and severity in HNC patients. Pooled multivariate odds ratios (ORs) with 95% confidence intervals (CIs) for predictors of incidence and severe mucositis (grade ≥ 3) were calculated using a random-effects meta-analysis model. Sensitivity analysis with one-study removal was used to evaluate the influence of a single study on the overall effect. Results: Of 1,864 articles screened, 26 studies comprising 4,592 HNC patients treated with RT=CT were included (76.3% male; mean age 59.1 years, SD 6.4). Higher maximal pharyngeal radiation dose was significantly associated with increased risk of oral mucositis incidence (OR = 1.11, 95% CI: 1.02-1.21, $p = 0.01$). Significant predictors of severe mucositis (grade greater than or equal to 3) included male sex (OR = 1.55, 95% CI: 1.05-2.28, $p = 0.03$), elevated neutrophil-to-lymphocyte ratio (NLR greater than 2.5) (OR = 1.62, 95% CI: 1.03-2.55, $p = 0.04$), and advanced tumor stage (T3/T4 vs. T1/T2; OR = 3.03, 95% CI: 1.04-8.83, $p = 0.042$; sensitivity analysis). Other factors, including alcohol consumption, tobacco history, BMI, and treatment-related variables such as radiation modality or number of chemotherapy cycles, were not significantly associated with either the incidence or severity of oral mucositis. Conclusions: In patients with HNC, higher maximal pharyngeal radiation dose is associated with an increased risk of oral mucositis incidence, while male sex, elevated NLR, and advanced tumor stage are significant predictors of severe mucositis.

78. A Case Series and Literature Review on Preoperative Vocal Cord Paresis or Paralysis in Benign Thyroid Lesions

Caitlin Deffler, BS; Vanessa Stubbs, MD; Craig Bollig, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize how impaired vocal cord mobility is not a definitive diagnostic marker for malignancy and may occur in the context of benign nodules. **Objectives:** Describe the clinical course of four patients with impaired vocal cord mobility from benign thyroid lesions and summarize existing literature on this topic. **Study Design:** Retrospective case series and literature review. **Methods:** Four adult patients who presented with preoperative vocal cord paresis or paralysis and had confirmed benign thyroid lesions had their charts reviewed for clinical features and outcomes. A literature search was conducted using PubMed for studies discussing preoperative vocal cord function in patients with benign thyroid lesions. **Results:** Left vocal cord paresis or paralysis was diagnosed in 3/4 patients preoperatively by flexible laryngoscopy. The other patient had presumptive vocal cord impairment based on her extensive left substernal goiter, progressive hoarseness, and later airway obstruction requiring intubation. All patients underwent thyroidectomy, had confirmed benign pathology, and made a complete functional recovery within 1 to 15 days. Our case series aligns with existing literature, which shows that the left recurrent laryngeal nerve is more susceptible to injury. The incidence rate of preoperative vocal cord paralysis in benign disease ranges from 0.2% to 5.52%, and the postoperative recovery rate and timeframe ranged from 20-100% and 1 day to 1 year respectively in studies with at least 5 patients with benign lesions. **Conclusions:** Our case series and literature review emphasize that preoperative impaired vocal cord mobility can be associated with benign thyroid pathology via compression by mass effect and has an excellent prognosis.

79. Quantifying Head and Neck Tumor Margin Shrinkage Following Formalin Fixation: A Meta-Analysis

Mary F. Dover, BS; Kyle S. Hrabovsky, BS (Presenter); Andrew W. Fansler, BA; Haodong Xu, MD; James D. Browne, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the impact of tumor margin shrinkage following excision and formalin fixation in head and neck cancer and recognize the need for standardized measurement protocols in future research. **Objectives:** Assess the impact of tumor margin shrinkage following excision and pathological analysis. **Study Design:** Systematic review and meta-analysis. **Methods:** 13 studies examining ex vivo head and neck tumor margin shrinkage were identified. A meta-analysis was conducted to determine average margin shrinkage. **Results:** 11 studies were identified that compared head and neck tumor margins before and after formalin fixation. On average, tumor margins shrank 12.6% following formalin fixation (zval: 6.09, 95% CI: 8.55-16.65, $p < 0.0001$). There was moderate to high heterogeneity and funnel plot asymmetry due to small study effects (zval: 3.55, $p = 0.0004$). Based on these conditions, there is significant shrinkage of tumor margins following formalin fixation, however, due to small study effects, the true degree of shrinkage is likely closer to 4.7% (95% CI: 1.26-8.13). 13 studies were identified that examined overall tumor shrinkage comparing post-formalin fixation measurements to in situ 1cm margins. On average, tumor margins shrank 23.6% following excision and formalin fixation (zval: 7.33, 95% CI: 17.01-29.44, $p < 0.0001$). There was moderate to high heterogeneity and funnel plot asymmetry due to small study effects (zval: 5.52, $p < 0.001$). Accounting for this, the true degree of tumor margin shrinkage following excision and fixation is likely closer to 3.88% and is not statistically significant (95% CI: -1.42-9.18). **Conclusions:** Tumor margin shrinkage occurs following surgical excision and formalin fixation. While shrinkage is statistically significant after formalin fixation alone, small study effects suggest the true magnitude may be smaller. The exact clinical significance of these findings remains unclear due to the limited body of research on this topic and study bias. A well designed, large scale study is needed to clarify this issue. Future research should separately evaluate pre-excision tumor margins, post-excision shrinkage, and post-formalin fixation shrinkage on a larger scale.

80. HLA-E Is a Promising Target for T Cell Immunotherapy in HPV Associated Head and Neck Squamous Cell Carcinoma

Simon Wilkes Ellington, BS; Chelston Ronald Ang, BS MS; Paul Michael Armistead, MD PhD; Natalia Isaeva, PhD; Wendell Gray Yarbrough, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand, based on patient gene expression data and in vitro translational experiments, why T cell therapy targeting HLA-E is a particularly promising therapeutic approach for HPV+ head and neck squamous cell carcinoma. **Objectives:** The goal of this study was to characterize whether the nonclassical HLA protein HLA-E could be a good target for T cell immunotherapies in head and neck squamous cell carcinoma (HNSCC). Additionally, we sought to elucidate whether HPV infection status impacts susceptibility of HNSCC to HLA-E-targeting T cell therapy. **Study Design:** In vitro experimental study. **Methods:** To determine whether HLA-E may be a clinically relevant target in HNSCC, we analyzed RNAseq data collected from patient derived tumor samples in The Cancer Genome Atlas (TCGA), comparing average HLA-E expression across 15 solid tumor types. To further elucidate the therapeutic promise of targeting HLA-E in HNSCC, we co-cultured HPV+ and HPV- HNSCC cell lines for 6h with reporter T cells engineered to express a luminescent protein upon activation of a HLA-E-targeting T cell receptor (E-TCR). Finally, we co-cultured each HNSCC cell line for 6h with primary CD8+ T cells expressing the E-TCR, then used CellTiter-Glo viability reagent to quantify sensitivity to HLA-E-targeting T cell therapy. **Readouts** for both the TCR activation assay and viability assay were luminescence, measured by a luminometer plate reader. Assays were conducted in triplicate. **Results:** Of the 15 solid tumor types analyzed, HNSCC had the second highest average HLA-E expression, having only 1% lower expression than the highest expressing type, cervical cancer. The reporter assay showed that the HPV+ HNSCC lines UM-SCC-47 and UD-SCC-2 displayed significantly increased activation of the E-TCR compared to our negative control, K562 (leukemia). Conversely, the HPV- HNSCC line SCC-25 showed no significant difference in TCR activation compared to K562. Finally, the CD8 T cell co-culture assay showed that the HNSCC cell line most sensitive to killing by HLA-E-targeting T cells was UM-SCC-47 (HPV+), followed closely by UD-SCC-2 (HPV+), while SCC-25 (HPV-) showed the weakest sensitivity. **Conclusions:** We identified HLA-E as a promising therapeutic target for HNSCC by showing that HLA-E is highly expressed in HNSCC as compared to other solid tumors, coupled with new evidence that HNSCC lines activate an HLA-E-targeting TCR. Our data further suggests that HLA-E- targeting therapy is especially promising for HPV+ head and neck tumors as HPV+ HNSCC lines more strongly activate the E-TCR than do HPV- lines and are more sensitive to HLA-E-targeting T cell killing than are HPV- lines.

81. Reduction of Intraoperative Aerosol Transmission Using a Novel Nasal Port Device

Kiran Ganga, BS; Jillian A. Moran, BA; Torri Lee, MD; Dylan Zerjav, MD; Raina White, MEng; Joseph Paydarfar, MD

Educational Objective: At the conclusion of this presentation, participants should be able to understand how a nasal port with suction reduces aerosol dispersion during endoscopic sinus surgery, improving infection control. **Objectives:** Endoscopic sinus and skull base surgeries generate aerosols that can transmit pathogens. This study evaluates a nasal port device to reduce dispersion. **Study Design:** Synthetic model experimental study. **Methods:** A custom 3D printed nasal port, fitted onto a silicone nasal model, was connected to a vacuum delivering 50 kPa suction. Aerosols were generated with a mist machine, passed through the model, and captured with high speed Photron FASTCAM PVF4 software. Three conditions were tested across 10 trials each: control (no port), port only, and port with suction. Particle density was calculated as baseline corrected average light intensity per frame, where 0 represents no particles and the maximum is all pixels at full saturation (255 per pixel). Statistical analysis included repeated measures ANOVA and effect size calculation. **Results:** Aerosol density was highest in the control (67,620 +/- 15,403), decreased 29% with the port (47,945 +/- 13,598), and by 85% with port and suction (10,464 +/- 2,013), with a significant overall effect (F-statistic = 89.81, df = 2, 18, p < 0.001, $\hat{\eta}^2 = 0.05$). Effect sizes were large (d = 1.35 for port vs. control) and larger (d = 3.86 for port vs. port with suction; d = 5.20 for control vs. port with suction), indicating significant reduction in dispersion. **Conclusions:** This study demonstrates that a nasal port device with suction mitigates aerosol dispersion during simulated endoscopic sinonasal procedures, suggesting potential to reduce airborne transmission risk to surgical teams.

82. Determinants of Titanium Hardware Exposure Following Cranioplasty: A Case Control Study

Educational Objective: At the conclusion of this presentation, the participants should be able to identify key patient and treatment related risk factors associated with titanium mesh exposure following cranioplasty; recognize early clinical signs that may precede titanium mesh exposure; apply evidence based strategies for reconstructive plan and postoperative monitoring to minimize the risk of hardware complications and optimize reconstructive outcomes. **Objectives:** Hardware exposure affects 6-17% of patients in meta-analyses, despite the many advantages of titanium mesh. We aim to identify risk factors associated with titanium mesh exposure following cranioplasty and characterize early wound changes that may signal impending hardware exposure. **Study Design:** Retrospective case control study. **Methods:** A review of 34 patients who underwent titanium mesh cranioplasty between 2020 and 2024 was performed. Seventeen patients with hardware exposure were matched 1:1 with 17 controls. Data on demographics, comorbidities, operative details, and postoperative complications were collected. Statistical analysis included Fisher's exact test and t-tests, with significance set at $p < 0.05$. **Results:** Significant risk factors for mesh exposure included a history of metal allergy (52.9% vs. 7.1%; $p = 0.009$) and post-cranioplasty radiotherapy (38.5% vs. 5.9%; $p = 0.02$). Additionally, advancement flaps were more commonly used in exposure cases (76.9% vs. 9.1%; $p = 0.001$), while rotational flaps were significantly more frequent in controls (90% vs. 30.8%; $p = 0.005$), suggesting a protective effect. Common wound findings preceding exposure included soft tissue atrophy (29.4%), erosion, necrosis, and dehiscence. Management varied from conservative wound care or skin grafting to immediate hardware removal and reconstruction. **Conclusions:** The risk of titanium mesh exposure increases with a history of metal allergy, postoperative radiotherapy, and the use of advancement flaps for reconstruction. Recognition of early wound changes is crucial for timely intervention. These findings support individualized surgical planning and highlight the need for close postoperative monitoring to reduce complications and improve reconstructive outcomes.

83. A Qualitative Analysis of Multilevel Multicomponent Strategies to Rapidly Implement Smoking Cessation Interventions for Newly Diagnosed Head and Neck Cancer Patients Before Oncologic Therapy

Amy Ho, BA; Robin T. Higashi, PhD; Dalia N. Mitchell, MSCI; Lucero Grimaldo, BS; Robert Schnoll, PhD; Andrew T. Day, MD MPH

Educational Objective: At the conclusion of this presentation, the participants should be able to investigate patient preferences for delivery of evidence based smoking cessation interventions prior to oncologic treatment. **Objectives:** To obtain patient feedback about two proposed multicomponent strategies to rapidly implement smoking cessation for newly diagnosed head and neck cancer (HNC) patients. **Study Design:** Qualitative study employing thematic analysis with a combined deductive-inductive approach. **Methods:** Surveys and semistructured interviews were conducted from 09/2024 to 03/2025 at a tertiary care academic center with posttreatment patients who smoked at the time of cancer diagnosis. The survey evaluated past receipt of smoking cessation treatment at the time of diagnosis and current symptoms. The interview addressed patient barriers and facilitators of smoking cessation and solicited feedback on two proposed multicomponent implementation strategies to rapidly implement smoking cessation for newly diagnosed HNC patients. Transcripts were thematically analyzed using NVivo 14.0 (Lumivero). **Results:** Of the 16 participants that completed the study, 56% were male with a median age of 63 and a median of 5.5 moderate-severe symptoms according to the Edmonton Symptom Assessment System revised at the time of the interview. Theme 1: lack of motivation is a common barrier to quitting ($n=7;44\%$) which participants felt was insufficiently addressed by the strategies. Theme 2: co-occurring supportive care needs at the time of diagnosis prevented some patients from prioritizing smoking cessation ($n=4;25\%$). Theme 3: participants reported diverse preferences in delivery of smoking cessation interventions, with each component of the strategies favored by at least one participant. **Conclusions:** Strategies with components addressing the diverse needs of new HNC patients may improve the implementation of smoking cessation interventions for this population.

84. Postoperative Outcomes of Sentinel Lymph Node Biopsy vs Elective Neck Dissection in Oral Cavity Cancer

Juyun Hwang, BS; David Lehmann, MD; John Cramer, MD

Educational Objective: At the conclusion of this presentation, participants should be able to describe differences in demographics and postoperative complication rates between patients undergoing sentinel lymph node biopsy vs. elective neck dissection for oral cavity cancer. **Objectives:** Sentinel lymph node biopsy (SLNB) is increasingly considered an alternative to elective neck dissection (END) in managing early stage oral cancer (OCC), with emerging evidence suggesting lower morbidity. This study compares postoperative 30 day outcomes between SLNB and END using a national surgical database. **Study Design:** Retrospective cohort. **Methods:** Patients with OCC undergoing SLNB or END were identified from the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database (2005-2021) using ICD-9, ICD-10, and CPT codes. Patients undergoing regional or free tissue transfer were excluded. The primary outcome was the occurrence of at least 1 postoperative complication. Secondary outcomes included major/minor complications and unplanned healthcare utilization. Unadjusted and adjusted analyses were performed using t-tests, chi-square tests and logistic regression. **Results:** A total of 3,117 patients met inclusion criteria, including 99 who underwent SLNB and 3,018 who underwent END. The SLNB group had a mean age of 59.8 years (55% female, 79% White), while the END group had a mean age of 61.9 years (40% female, 74% white). Postoperative complication occurred in 4% of SLNB patients and 22% of END patients ($p < 0.001$). END was associated with significantly increased odds of complications (OR 6.686; 95% CI, 2.45-18.25). **Conclusions:** SLNB is associated with significantly fewer 30 day postoperative complications than END in patients with OCC, supporting its uses as a lower morbidity alternative. Demographic differences between groups were modest. These findings align with growing evidence favoring SLNB in appropriately selected patients.

85. Insomnia Symptoms and Risk Factors in Head and Neck Cancer Survivors Compared to Survivors of Other Cancer: a Pooled, Cross-Sectional Analysis of the National Health Interview Survey

Ayush G. Iyer, BS; Rebecca Lee, MD; Erika Ren, BS; Yulun Liu, PhD; Eric S. Zhou, PhD; Andrew T. Day, MD MPH

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the epidemiology and significance of insomnia symptoms in head and neck cancer (HNC) survivors. **Objectives:** To characterize the prevalence, risk factors, and nature of insomnia symptoms in HNC survivors relative to survivors of other cancers (SOCs) and non-cancer controls (NCCs). **Study Design:** Cross-sectional analysis of the National Health Interview Survey. **Methods:** HNC survivors were matched by age, sex, race/ethnicity, and survey year to SOCs and NCCs at a 1:4:4 ratio from 2013-2018. The study was framed using Grandner et al's socio-ecological model for sleep health. The primary outcome was insomnia symptoms, based on DSM V diagnostic criteria for insomnia disorder. The co-primary exposures were pain of the head, neck, or face as well as severe psychological distress. Weighted descriptive statistics and multivariable logistic regression were performed using STATA 18. **Results:** Using weighted data, 157,240 HNC survivors, 671,909 matched SOCs, and 659,968 matched NCCs with sleep data were identified. Compared to SOCs, HNC survivors were disproportionately less educated and more economically disadvantaged. HNC survivors had a similar prevalence rate of insomnia symptoms compared to SOCs (HNC=29.2%; SOC=25.1%; $p=0.213$) and a significantly higher rate compared to NCCs (NCC=20.3%; $p=0.005$). Still, relative to SOCs and NCCs, HNC survivors experienced significantly higher rates of sleep medication use (HNC=25.7%; SOC=18.9%; NCC=17.9%) and difficulty maintaining sleep (HNC=41.9%; SOC=34.0%; NCC=30.3%). On adjusted weighted analyses evaluating risk factors for insomnia symptoms in HNC survivors, younger age ($aOR=0.96$; $p=0.035$), head, neck, or face pain ($aOR=3.49$; $p=0.005$), sleeping <7 hours per night ($aOR=3.49$; $p=0.004$), and lower back or joint pain ($aOR=3.28$; $p=0.021$) significantly associated with the outcome. **Conclusions:** These data underscore the importance of screening for and managing both insomnia and pain in HNC survivors.

86. Impact of Mucosal Versus Soft Tissue Positive Final Margin Status on Survival Outcomes in Total Laryngectomy Patients

Whitney Jin, BA; Daniel RS Habib, BA; Patrick Tassone, MD; Joseph Curry, MD FACS; Michael C. Topf, MD MSCI

Educational Objective: To examine the prognostic impact of mucosal versus soft tissue positive final margins in patients undergoing total laryngectomy. **Objectives:** Positive surgical margins on final pathology are a known prognostic factor for local recurrence and survival outcomes in patients with larynx cancer. However, the relationship between type of final positive margin -- mucosal versus soft tissue remains underexplored. This study aims to determine whether the type of positive margin following total laryngectomy is predictive of recurrence and survival. **Study Design:** Multi-institutional retrospective cohort study. **Methods:** Patients who underwent total laryngectomy between 1999-2024 and had positive margins on final pathology were included. Positive margins were defined as invasive carcinoma, carcinoma in situ, or severe dysplasia present at the ink. Margins were categorized into mucosal and soft tissue based on pathologic review. Patients with both mucosal and soft tissue positive margins were classified as mucosal positive margins. To evaluate the impact of positive margin type on overall survival (OS), disease-free survival (DFS), and local recurrence-free survival (LRFS), we performed Kaplan-Meier log-rank survival analyses and multivariable Cox proportional hazards regressions controlling for age, sex, pathologic T and N stage, lymphovascular invasion (LVI), perineural invasion (PNI), extranodal extension (ENE), preoperative radiation, adjuvant radiation, and adjuvant chemotherapy. **Results:** After excluding cases with unspecified margin and survival data, the total cohort included 142 cases: 71 with mucosal and 71 with positive soft tissue margins. Positive mucosal margins were significantly associated with worse DFS ($p=.022$) and LRFS ($p=.028$) on Kaplan-Meier analysis but not OS ($p=.111$). On univariate Cox regression, positive mucosal margin was associated with worse DFS (HR=1.57, 95% CI: 1.06-2.31) and LRFS (HR=1.55, 95% CI: 1.05-2.30). Multivariable analysis showed a non-statistically significant trend toward mucosal margin status being associated with worse DFS (HR=1.41, 95% CI: 0.83-2.40, $p=.204$) and LRFS (HR=1.51, 95% CI: 0.88-2.59, $p=.132$) and no significant association with OS (HR=1.29, 95% CI: 0.73-2.28, $p=.377$) when controlling for significant covariates on univariable Cox regressions. **Conclusions:** In this multi-institutional cohort, final positive mucosal margins following total laryngectomy was associated on univariable analysis with worse DFS compared to positive soft tissue margins.

87. Secondary Tracheoesophageal Prosthesis Placement Using a Chest Tube in a Difficult Exposure Total Laryngectomy Patient

Whitney Jin, BA; Kelly Vittetoe, MD; Michael C. Topf, MD MSCl

Educational Objective: At the conclusion of this presentation, the participants should be able to describe an alternative technique for secondary tracheoesophageal prosthesis (TEP) placement in patients with challenging anatomy following total laryngectomy. **Objectives:** Tracheoesophageal prostheses (TEPs) are a well-established method of voice restoration following total laryngectomy. To perform secondary TEP placement, rigid esophagoscopy is required but may be challenging in patients with altered post treatment anatomy, dentition, and poor neck mobility, necessitating alternative approaches for safe and effective prosthesis placement. This case report describes the feasibility of secondary TEP placement using a chest tube and flexible endoscope in a post-radiation TL patient with difficult exposure. **Study Design:** Case report and literature review. **Methods:** A 36 Fr chest tube and pediatric flexible esophagoscope were advanced via a Seldinger technique to the level of the tracheostoma. Under direct visualization through the pediatric scope, the TEP kit trocar was passed through a fenestration in the chest tube and directed through the common party wall into the neopharynx. A guidewire was then passed retrograde through the mouth, and the prosthesis was successfully loaded and advanced antegrade over the guidewire. **Results:** A 64-year-old man with pT4aN0 laryngeal squamous cell carcinoma underwent total laryngectomy with primary closure followed by adjuvant radiation therapy. Initial rigid esophagoscopy for secondary TEP placement was unsuccessful due to poor visualization and an inability to reach the tracheostoma with the rigid esophagoscope. Two months later, secondary TEP placement was performed using the above modified technique. The patient achieved intelligible tracheoesophageal speech at one-week post procedure, with no evidence of dysphagia, aspiration, or false passage. A review of the literature supports the use of flexible endoscopy, particularly in combination with Seldinger-based techniques and adjuncts such as chest or endotracheal tubes, as a safe and effective method for secondary TEP placement in patients with anatomic challenges including trismus, kyphosis, or post-radiation changes. Reported

outcomes include high success rates and low complication rates. Conclusions: Flexible endoscopic TEP placement with use of a chest tube for access to the neopharynx represents a viable alternative to rigid esophagoscopy in patients with difficult exposure. This technique facilitates prosthesis placement under direct visualization while minimizing trauma to surrounding tissues.

88. The Influence of Demographic and Socioeconomic Factors on Parotid Malignancy Incidence, Treatment, Diagnosis, and Outcomes: A Systematic Review

Wyatt A. Johnson, BA; Taylor L. Jamil, MD MPH; Brian P. Cervenka, MD; Julie A. Goddard, MD; Carissa M. Thomas, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to synthesize and analyze how patient demographics, socioeconomic factors, and social determinants of health impact cancer outcomes. Objectives: To determine how age, sex, race, ethnicity, and socioeconomic status affect parotid cancer diagnosis and treatment outcomes. Study Design: Systematic review with PRISMA format and risk of bias assessment. Methods: A systematic review using PRISMA format to evaluate how socioeconomic, demographic, and social factors affect parotid gland malignancy outcomes in diagnosis and treatment. All available and relevant primary, English, literature was collected from PubMed, Embase, and Google Scholar. Meta-analysis could not be performed due to dissimilar health inequity and outcome measurements. Results: 406 studies were screened, with 10 meeting the inclusion criteria. A total of 85,285 patients were evaluated across all 10 studies with the majority of patients being non-Hispanic white. Two studies focused on pediatric parotid malignancy outcomes. All studies were either retrospective database reviews or retrospective cohort studies utilizing the Surveillance, Epidemiology, and End Results (SEER) Program and National Cancer Databases. Increasing age, male sex, low socioeconomic background, Medicare, Medicaid, or uninsured insurance status, widowed marriage status, high social vulnerability, rurality, speaking a minority language, and low educational attainment were all associated with worse 5- and 10-year survival, longer diagnosis to treatment, and more post-treatment complications. Conclusions: Health disparities significantly impact parotid cancer care and outcomes. Improved patient education, supporting services after diagnosis, and culturally sensitive community engagement, such as head and neck cancer screening programs, may help improve health disparities in this population.

89. Utility of Sentinel Lymph Node Biopsy for Head and Neck Melanoma in the Geriatric Population: A Database Study

Alexa J. Kacin, MD; Isha Shah, BS; Alekhya Pidugu, BS; Valentina Montanez-Azcarate, MD; Felipe Porto, MD; Scharukh Jalisi, MD MBA MA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the impact of sentinel lymph node biopsy on overall survival in geriatric patients with head and neck melanoma. Objectives: To assess the impact of sentinel lymph node biopsy (SLNB) on 5-year overall survival in geriatric patients with head and neck melanoma. Study Design: Retrospective cohort study using a national cancer registry. Methods: We analyzed data from the National Cancer Database (2004-2021), identifying patients greater than 64 years with cutaneous melanoma of the head and neck using ICD-10 codes. Patients were excluded if they were less than or equal to 64 years, had non-head and neck primary tumors, metastatic disease, or underwent lymph node procedures without SLNB. Kaplan-Meier survival analysis assessed the association between SLNB and overall survival. Multivariable Cox models identified factors associated with mortality. Results: Of 16,960 patients, 6,399 (37.7%) underwent SLNB; 634 (9.9%) had positive nodes. SLNB use was associated with age, sex, facility type, and geographic access (all $p < 0.0001$). Five-year overall survival was higher in the SLNB group (70.8%, 95% CI: 69.0-72.7%) compared to the no-SLNB group (69.3%, 95% CI: 67.9-70.8%, $p = 0.0014$). Patients with negative SLNB had better survival (72.0%, 95% CI: 70.1-74.0%) than those with positive SLNB (60.8%, 95% CI: 55.3-66.8%) and those without SLNB ($p < 0.00001$). On multivariable analysis, negative SLNB was protective (HR=0.70, 95% CI: 0.63-0.78, $p < 0.001$). Worse survival was associated with advanced age, male sex, Black race, Breslow depth, ulceration, mitotic activity, and comorbidity burden. Conclusions:

SLNB is associated with improved 5-year overall survival in geriatric patients with head and neck melanoma and should not be withheld based on age alone in appropriate surgical candidates.

90. The Inclusion of Sociodemographic Variables in Randomized Controlled Trials in Head and Neck Neoplasms
Kunal Abhishek Koka, BS; Veenadhari Kollipara, BA; F. Jeffrey Lorenz, MD; Neerav Goyal, MD MPH

Educational Objective: At the conclusion of this presentation, the participants should be able to analyze the importance of sociodemographic variable inclusion in head and neck cancer randomized controlled trials (RCTs) and describe current trends in the reporting of sociodemographic data and its impact on generalizability of RCTs. Objectives: There is a lack of research on the inclusion of sociodemographic data in head and neck cancer (HNC) randomized controlled trials (RCTs). The aim of this study was to assess the prevalence of sociodemographic data in RCTs related to mucosal HNC. Study Design: Systematic review. Methods: RCTs within PubMed from 2009-2025 were searched and 279 full text English articles were reviewed for sociodemographic variables. Data was collected regarding inclusion of age, sex, race, ethnicity, insurance status, income, work status, education, and marital status. Results: Sociodemographic data other than age and sex was found in 66 studies (23.7%). Age was found in 96.4% (n = 269), sex in 88.9% (n = 248), race in 15.1% (n = 42), ethnicity in 7.5% (n = 21), insurance status in 0.4% (n = 1), income in 1.1% (n = 3), work status in 3.9% (n = 11), education in 8.2% (n = 23), and marital status in 4.7% (n = 13). International journals (n = 221, 79.2%) published more articles than American journals (n = 58, 20.8%). No statistically significant difference was found between inclusion of sociodemographic characteristics and journal of publication (p = 0.95) or primary study outcome (p = 0.15). There was a statistically significant difference in inclusion of sociodemographic data and the origin of journal (p = 0.01), with American journals being more likely to include sociodemographic data. Conclusions: This study highlights the need for greater inclusion of sociodemographic data in HNC research and emphasizes the importance of integrating these characteristics into research.

91. Head and Neck Cancer Screening Events: Assessing Patient Awareness in Community Based Prevention Programs
Veenadhari Kollipara, BA; Hera Mukhtar, BS; Kunal A. Koka, BS; Neerav Goyal, MD MPH FACS

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the effectiveness of community based screening programs in patient education and early detection efforts. Objectives: While standards of treatment for head and neck cancer (HNC) treatment have improved, early detection remains challenging. Improved patient awareness of HNC signs and symptoms may enable earlier diagnosis. Study Design: Surveys distributed during HNC screening events. Methods: Annual HNC screening events began in April 2009, coinciding with HNC awareness month. Since 2022, participant surveys have assessed risk factors, symptom awareness, and signs of recognition. Results: During four HNC screening events, 163 patients participated: 60 (36.8%) males, 103 (63.2%) females, ages 22-89 years (mean 58, median 60). Patients learned about screening through local news (23, 14.1%), hospital messaging (17, 10.4%), and flyers (21, 12.9%). Thirty-two patients (19.8%) had family members with HNC history, 11 (6.8%) had previous HNC treatment, and 36 (22.5%) had prior head/neck medical interventions. Current tobacco use was reported by 30 patients (18.5%), with 66 (41.5%) reporting past use. Sixty patients (38.2%) reported lifetime alcohol consumption. Common reported signs included sore throat, throat lumps, dysphagia, or denture problems (71, 44.1%). ENT examination revealed abnormalities primarily in neck, oral cavity, and dentition. Fifty-three patients (33.1%) required further ENT evaluation. No cancers were detected, but several benign conditions were identified and treated. Conclusions: The HNC screening events successfully connected patients with otolaryngologists to address cancer related concerns. Though no malignancies were found, benign conditions were discovered and managed. Secondary objectives included patient education on warning signs and risk factors, plus medical student training opportunities in head and neck examination techniques.

92. Postoperative Hypoparathyroidism in Pregnant and Lactating Patients: Diagnostic and Management Challenges

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the diagnostic limitations of PTH monitoring in pregnant and lactating patients with postoperative hypoparathyroidism. They should also understand alternatives for diagnosing hypoparathyroidism in this population and the recommendations for calcium and calcitriol supplementation to guide safe and effective management for the patient and fetus/infant. **Objectives:** To understand the diagnostic limitations of parathyroid hormone (PTH) monitoring in pregnant and lactating patients with postoperative hypoparathyroidism as well as to describe the recommendations for calcium and calcitriol supplementation in this population. **Study Design:** Case report and literature review. **Methods:** One case of transient postoperative hypoparathyroidism after undergoing completion thyroidectomy. Additionally, a search was conducted within PubMed for publications on the management of hypoparathyroidism in pregnant and lactating patients. **Results:** A 4X year old lactating female underwent completion thyroidectomy for a symptomatic substernal goiter. Postoperatively, her PTH remained undetectable, yet she remained asymptomatic with stable serum calcium levels. She was managed conservatively with oral calcium carbonate alone. Calcium supplementation is considered safe in lactation and does not pose risk to the infant. Calcitriol, while detectable in small quantities in breast milk, is generally considered safe with monitoring. There is currently no recommendation for routine serum calcium monitoring in infants receiving breast milk from mothers treated with supplementation, though clinical observation is warranted. **Conclusions:** Reliance on PTH alone can be misleading in pregnant and lactating postpartum patients due to physiologic suppression by production of PTH related protein by the placenta and breast tissue, respectively. Therefore, regular monitoring of serum calcium, basic metabolic panel, and clinical symptoms every 2-4 weeks is essential for appropriate management. Calcium supplementation and symptom monitoring offer the safest, most effective guidance, although calcitriol can be used with appropriate monitoring. This case reinforces the importance of individualized care and consultation with appropriate subspecialists, including endocrinologists and/or reproductive endocrinologists.

93. Orticochea Local Flap for Reconstruction of Large Scalp Defects: Outcomes and Technique

Ethan Barron Lewis, BS; Andrew Peterson, MD MSCI; Jason Rich, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the indications, surgical technique, and advantages of the orticochea flap for scalp reconstruction. **Objectives:** The orticochea flap is a local three flap technique that can be used to reconstruct large frontal or occipital scalp defects. This technique is a viable and underutilized alternative to free tissue transfer and can be particularly useful in frail patients or in patients who desire a more aesthetically pleasing scalp reconstruction and hair preservation. To date there are no published surgical outcomes of the orticochea flap. Herein, we present the first ever series of in-depth surgical outcomes for the Orticochea flap. **Study Design:** This is a retrospective case series of patients undergoing orticochea flap scalp reconstruction between 2020-2024 at a single, large, urban academic center. **Methods:** Patients treated with the Orticochea flap between 2020 and 2024 were identified via retrospective chart review. Patient demographics, intraoperative data, and postoperative outcomes were collected. **Results:** Six patients (ages 82 - 86 years) underwent orticochea flap reconstruction of the scalp for cutaneous malignancies. The average mean defect diameter was 7.8 cm (range 7 - 9.5) orticochea flap recipients benefited from shorter operation times (mean=5.5 +/- 0.7 hours) and very short hospital stays (median=1 day) with no major medical events occurring. Marginal necrosis occurred in 2 patients, one of which required a secondary skin grafting procedure. There were no wound related delays for patients requiring postop radiotherapy. **Conclusions:** The orticochea flap is an effective yet overlooked reconstructive technique for large frontal or occipital scalp defects. This technique is especially useful in older, frail patients or those requiring hair preservation.

94. Clinical Outcomes and Management of Postoperative Facial Nerve Paralysis in Patients with Invasive Carcinoma Ex-Pleomorphic Adenoma

Educational Objective: At the conclusion of this presentation, the participants should be able to gain better understanding of the intricate management for the optimal recovery of the facial nerve as well as appreciate the effectiveness of intraoperative facial nerve monitoring and risk factors associated with postoperative facial palsy in patients with ex-pleomorphic carcinoma. **Objectives:** To examine the incidence, risk factors, recovery time for postoperative facial nerve paralysis as well as to investigate the intricate clinical and surgical management of facial nerve repair in patients with highly invasive CxPA. **Study Design:** Retrospective Chart Review. **Methods:** A retrospective review was performed of patients with CXPA who underwent surgical treatment with intraoperative facial nerve monitoring at a medical center from 1992 to 2022. Pre- and postoperative facial nerve function was evaluated using the House-Brackmann (HB) scale. Postoperative follow up was focused on the identification and documentation of facial nerve dysfunction/paralysis. Univariate and multivariate regression models were developed to examine factors independently associated with facial nerve paralysis. The most recent data from patient records were included in the analysis. **Results:** Seventy-seven (77) patients met our inclusion criteria. Out of the 77 patients, 29 patients had postoperative facial nerve paralysis, with the marginal branch of the cranial nerve VII being the most involved (n=20, 69.0%). 44.8% (n=13) cases presented with transient paresis and resolved spontaneously. 20.7% (n=6) were successfully managed nonoperatively with facial exercise therapy combined with Botox or corticosteroids. 34.5% of patients (n=10) had long term facial nerve dysfunction and required facial reanimation procedures. Among the facial reanimation surgeries, 25.6% patients (n=8) underwent fascia lata sling procedures and 6.9% of patients (n=2) received facial nerve coaptation with interposition grafting. Out of the 29 cases of facial nerve paralysis, 27.6% had a positive margin and 51.7% were positive for perineural invasion. Our preliminary results demonstrated that female sex was weakly associated with decreased risk of postoperative facial nerve paralysis (p=0.06). No significant association was observed between the risk of developing new facial nerve paralysis and factors such as age, tumor size, smoking status, surgical margin, rate of recurrence of the disease. **Conclusions:** The invasive nature of CXPA poses a particular challenge regarding the optimal surgical management, often requiring sacrifice of the facial nerve despite normal preoperative function. In our study, postoperative facial nerve paralysis carries an incidence rate of 37%, with 13% involving long-term facial nerve dysfunction. Our study provides important clinical decisions for the optimal recovery of facial nerve function in patients affected with CxPA.

95. Burden of Pretreatment Diagnostic Tests and Medical Visits for Newly Diagnosed Head and Neck Cancer Patients

Dalia N. Mitchell, MS; Marlaine H. Frelier, BS (Presenter); Alex Zhu, BS; Austin Bridges, BS; Reena Kudchadker, BS; Andrew T. Day, MD MPH

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the clinical burden experienced by head and neck cancer patients during the pretreatment workup. The main emphasis is on the overall number of clinical encounters, including the typical number of lab visits, imaging studies, procedures, and specialty visits they face between the first concern for cancer and treatment initiation. Participants should be able to describe disparities in pretreatment care efficiency based on geographic proximity to the university-based cancer center. **Objectives:** The cofactors and burden of the pretreatment head and neck cancer (HNC) diagnostic work-up and clinical care have not yet been characterized. **Study Design:** We conducted a retrospective cohort study of new HNC patients evaluated at a university head and neck surgical oncology clinic between July 1, 2023, and June 30, 2024. **Methods:** We quantified per-patient clinical encounters including lab days, imaging studies, procedures, and specialty encounters from first concern for malignancy to treatment initiation. The primary outcome was the number of unique dates with care encounters. Primary exposure was distance from the university (within 50 vs over 50 miles). **Results:** Among 226 included HNC patients, 67 lived over 50 miles away. Patients experienced a median of 18.5 total clinical encounters across 10 distinct visit dates during the pretreatment interval. This included a median

of 3 lab dates (interquartile range [IQR]: 2-5), 4 imaging tests (IQR: 3-6), 4 procedures (IQR: 3-5), 4 specialty referrals (IQR: 3-6), and 7 specialty encounters (IQR: 4-9). Patients living greater than 50 miles from the university experienced longer pretreatment intervals (73 vs 56 days; $p = 0.001$) and a lower ratio of clinical encounters to pretreatment days (0.14 vs 0.18; $p = 0.022$). On multivariable analysis, the most significant predictors for increased overall visit dates were longer time between first surgical oncology visit to treatment start ($\beta = 0.05$; 95% confidence interval [CI] 0.03-0.07; $p < 0.001$), increased age at diagnosis ($\beta = 0.07$; 95% CI 0.01-0.14; $p = 0.020$), and advanced clinical stage at diagnosis ($\beta^2 = 2.56$; 95% CI 1.08-4.05; $p = 0.001$). Conclusions: Newly diagnosed HNC patients experience a substantial burden of pretreatment care, and efforts to improve care clustering, particularly for more rural patients, are needed.

96. Factors Influencing Surgical Management of Patients with T4b Sinonasal Cancer: Analysis of the National Cancer Database

Valentina Montanez-Azcarate, MD; Zoha Fatima Syed, BA (Presenter); Felipe Porto-Gutierrez, MD; Brett Campbell, MD; Alexa Kacin, MD; Ernest Gomez, MD; Scharukh Jalisi, MD MBA

Educational Objective: At the conclusion of this presentation, the participants should be able to appreciate which clinical, demographic, and institutional factors are associated with receiving or not receiving surgery in patients with T4b sinonasal cancer. Objectives: To examine national treatment patterns and identify factors associated with surgical management of T4b sinonasal malignancies. Study Design: Retrospective cohort study using a national cancer registry. Methods: We analyzed data from the National Cancer Database (2004-2022) to identify patients diagnosed with clinical T4b sinonasal malignancies. Patients were grouped by treatment approach: surgery with adjuvant therapy vs definitive chemoradiation. Multivariable logistic regression assessed clinical, demographic, and institutional predictors of surgery. Results: Of 2244 patients, 57.5% received surgery as part of treatment. Surgical management was more likely among patients with private insurance (aOR 1.56, 95% CI 1.17-2.08), those treated in the northeast (aOR 1.55, 95% CI 1.12-2.16), and patients traveling more than 100 miles for care (aOR 1.89, 95% CI 1.35-2.63). Histologic subtypes such as melanoma (aOR 13.37), neuroectodermal tumors (aOR 11.79), adenoid cystic carcinoma (aOR 2.98), and adenocarcinoma (aOR 2.99) were more likely to receive surgery. Node positivity was negatively associated with surgery (aOR 0.49). Conclusions: Despite guideline recommendations, surgery remains common for T4b sinonasal cancer. Surgical selection appears driven by tumor biology as well as access and system level factors. These findings highlight the evolving and context dependent definition of unresectability in clinical practice.

97. Surgical and Oncologic Outcomes of Open Versus Endoscopic Debulking of Low to Intermediate Grade Laryngeal Chondrosarcomas

Molly M. Murray, MD; Emanuel Uzobuife; Christine Lohse, MS; Dale Ekbom, MD; Semirra Bayan, MD; Linda X. Yin, MD

Educational Objective: Laryngeal chondrosarcomas are slow growing and can be managed with subtotal resection. Outcomes of open vs. endoscopic approaches to debulking have not been compared. Objectives: To compare surgical and oncologic outcomes of open or endoscopic debulking of laryngeal chondrosarcomas. Study Design: Retrospective cohort study of patients with low-to-intermediate laryngeal chondrosarcomas at a tertiary care center. Methods: Demographics, oncologic outcomes, tracheostomy and feeding tube status, and vocal fold mobility status were collected. Survival rates free of another surgery or total laryngectomy were estimated using the Kaplan-Meier survival analysis with univariable Cox regressions. Results: Forty-seven patients (median age 72, 77% male) were included; 27 open, 20 endoscopic. Survival rates free of another surgery (95% CI) at 1 year were 88% (76-100) for an open approach and 69% (50-96) for an endoscopic approach (HR 2.00, 95% CI 0.86-4.63, $p=0.11$). Laryngectomy-free survival at 5 years was 86% in both groups. Tracheostomy occurred in 78% versus 40% of patients who underwent open versus endoscopic debulking. Only 4 patients in both groups required a feeding tube. Six patients had a new vocal cord immobility after an open debulking, while only one patient developed this complication after endoscopic

debulking. Conclusions: At one year, patients who underwent open debulking were less likely to need another surgery compared to those that underwent endoscopic debulking. The open approach is associated with greater risk of tracheostomy and vocal cord immobility. At 5 years, both groups have a low risk of needing total laryngectomy.

98. Barriers and Predictors of Dental Care Access Among Head and Neck Cancer Survivors Post-Radiation Therapy

Armita Norouzi, BA; Alyssa Civantos, MD; Shauna Brodie, RN MS FNP; Kennedy Johnson, BS; Kevin Avelar, BS; Mary Jue Xu, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe common barriers to dental assessment and care among head and neck cancer (HNC) patients in a public safety-net hospital setting. Objectives: To evaluate self-reported access to dental care before and after radiation therapy (RT), assess post-RT fluoride use, and identify perceived barriers to dental care among patients with HNC. Study Design: Cross-sectional survey. Methods: Convenience sample of thirty-two HNC survivors at an urban safety-net hospital, who completed RT within the past twenty years. Descriptive statistics summarized demographics, dental evaluation and counseling, oral hygiene practices, and socioeconomic barriers. Chi-square and Fisher's exact tests assessed associations. Results: Among thirty-two respondents, most had participated in routine dental care prior to RT (86.7%), but only twenty-one (65.6%) reported having had a pre-RT dental evaluation. Twenty (62.5%) reported barriers to dental care, most commonly due to insurance and cost. Other barriers were time constraints, embarrassment, difficulty finding a dentist, and low perceived importance. Low perceived importance was significantly associated with lack of pre-RT evaluation ($p=0.032$). Nine (28.1%) did not know how to schedule a dental appointment. Six (19.3%) received prior fluoride varnish treatment, nine (28.1%) had been informed of the importance of varnish, and four (12.5%) used prescription fluoride toothpaste. In univariate analysis, White participants were significantly more likely to have received varnish than non-White participants ($p=0.008$). Post-RT, fifteen (46.9%) recalled being informed of dental care importance. Conclusions: Despite guideline recommendations, many HNC survivors report not receiving pre-RT dental evaluation or post-RT fluoride treatment. Racial disparities in post-RT fluoride receipt may exist, though larger studies are needed to confirm these trends. Addressing reported barriers by enhancing patient education, reducing financial barriers, and strengthening care coordination may improve outcomes.

99. Health Inequities in Long Term Gastrostomy Tube Use in Head and Neck Cancer

Madeline G. Olson, BA; Taylor Jamil, MD MPH; Keiko Fox, BS; Wyatt Johnson BS; Dexiang Gao, PhD; Mackenzie Daly, MD; Ryan Lanning, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the use of gastrostomy tubes (GT) for management of malnutrition in head and neck cancer (HNC) after treatment with radiation (RT) or chemoradiation (CRT) Objectives: Evaluate whether patients from lower socioeconomic backgrounds or underrepresented racial groups have higher rates of long-term GT use. Study Design: Retrospective cohort Methods: An IRB exempt retrospective review was performed on 784 patients with HNC who underwent definitive RT/CRT for HNC at a tertiary academic center. Patients with thyroid or cutaneous malignancies were excluded. Social disparity variables included age, sex, race and ethnicity, insurance status, number of hospitals in a 25-mile radius from zip code, social vulnerability index (SVI), and distressed community index (DCI) scores. Tumor AJCC 7th stage, RT/CRT type and dosing, initial tracheostomy and GT placement, and a calculated body mass index change (pre-treatment - post-treatment) was also collected. GT placement prior to RT/CRT, during, and post treatment was also collected. The primary endpoint was GT use 1 year post RT/CRT. Comparison and regression analysis was performed to examine what social variables affected long term GT use, while controlling for tumor size, treatment, and RT side effects. Results: 33% of patients underwent GT placement prior or during RT/CRT with 43 patients (5.5%) remaining GT dependent 1-year post treatment. Concomitant chemotherapy, active smoking, lower initial BMI, increased BMI percentage lost during treatment, recurrent disease, and stage 4 disease were at an increased risk for chronic GT dependency. SVI ($p:0.036$) and DCI (0.009) scores indicating lower socioeconomic status was associated with higher

GT dependency. Conclusions: Patients from socioeconomically disadvantaged communities have higher chronic GT dependence rates, which increases morbidity of GT-related complications and reduces patients' quality of life. We suggest improved pre and intra treatment weight and swallowing management for these patients at high risk for chronic GT dependence.

100. Normocalcemic Tetany After Parathyroidectomy: A Case Series

Rahul D. Patel, BS; Samir Alkhouri, BS; Benjamin Tam, MD; Caroline Liu, MD; Robert C. Wang, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to 1) recognize normocalcemic tetany after parathyroidectomy; 2) differentiate it from classic hungry bone syndrome; and 3) initiate appropriate monitoring and symptom directed therapy. Objectives: Describe patients who developed hypocalcemic symptoms despite normal ionized calcium levels after parathyroidectomy for primary hyperparathyroidism (PHPT), review the scant literature, and offer management guidance. Study Design: Retrospective case series with literature review. Methods: Adult PHPT cases at a tertiary center were screened for postoperative paresthesias, cramps, or Chvostek sign without biochemical hypocalcemia. Charts were reviewed for demographics, operative details, serial electrolytes, symptom trajectory, and treatment. PubMed and Embase were searched for comparable reports. Results: Three patients developed perioral tingling, distal paresthesias, carpopedal spasm, and bilateral Chvostek signs between postoperative day 1-6. Ionized calcium remained within reference limits (5.0-6.1 mg/dL) but had fallen sharply from preoperative values. Parathyroid hormone and vitamin D were normalizing. Including four previously published cases, oral calcium +/- active vitamin D eased symptoms; none required readmission, yet twitching persisted up to six months in two patients. Normocalcemic tetany occurred within one week in 6/7 patients and complete resolution was noted in only 2/7. Conclusions: Rapid downward postoperative shifts from chronic hypercalcemia can provoke tetany even when absolute ionized calcium remains "normal". Early recognition can prevent unnecessary workups. Serial calcium trend monitoring, patient education, and timely oral supplementation appear effective for symptom control, although protracted recovery is common. Prospective studies are needed to clarify pathophysiology and optimize management protocols.

101. Predicting Sentinel Lymph Node Biopsy Positivity in Head and Neck Cutaneous Melanoma: Development of a Nomogram and Online Risk Calculator

Felipe Porto-Gutierrez, MD; Brett Campbell, MD; Valentina Montanez-Azcarate, MD; Alexa Kacin, MD; Zoha Fatima Syed, BA; Scharukh Jalisi, MD MBA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how to apply a predictive model for sentinel lymph node biopsy (SLNB) positivity to guide individualized diagnostic and surgical strategies in patients with early stage head and neck cutaneous melanoma. Objectives: This study aimed to develop a prognostic model for SLNB positivity in head and neck cutaneous melanoma, with a focus on specific anatomic sublocations that have been underrepresented in prior models. Study Design: Retrospective cohort study. Methods: We conducted a retrospective cohort study using the NCDB, including patients with cutaneous melanoma in the head and neck. Inclusion criteria comprised clinical node negative, early stage melanoma patients who underwent SLNB between 2004 and 2021. Demographic, clinical, and pathologic features were compared with chi-squared testing, and multivariate logistic regression was applied to identify independent predictors of sentinel lymph node positivity. These significant factors were then used to develop a nomogram to estimate individual sentinel lymph node metastasis risk. Subsequently, the nomogram was incorporated into a risk calculator. Results: A total of 14,058 clinical N0, M0 cutaneous head and neck melanoma patients who underwent SLNB were included. Among them, 2,182 (15.5%) had a positive SLNB. On multivariate logistic regression analysis, age, head and neck sublocation, histological subtype, mitotic rate, Breslow thickness, LVI, and ulceration were independent predictors of SLNB positivity. A nomogram including these variables was created to estimate the probability of sentinel lymph node metastasis. The C-index of the model was 0.724 (95% CI 0.712 - 0.735), suggesting good discriminative ability. The nomogram was incorporated into an online calculator. Conclusions: This study provides a predictive tool that allows

head and neck surgeons to estimate the risk of SLNB positivity in individual patients, enabling more personalized surgical decision making in early stage head and neck melanoma.

102. Preoperative Cannabis Use Predicts Extended Opioid Use Following Head and Neck Free Flap Reconstruction

Ella Prebel Jackert, BS; Tyler Gallagher, MD MPH; Niels Kokot, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the impact of preoperative cannabis use on postoperative functional outcomes, especially long-term opioid dependence, in head and neck cancer patients undergoing free flap reconstruction. Objectives: This study investigates the functional outcomes of free flap reconstruction in head and neck cancer patients with a history of cannabis use. Study Design: Retrospective cohort study. Methods: The TriNetX U.S. Collaborative Network identified patients who underwent free flap reconstructive surgery for head and neck malignancies from 2005-2025. Patients were stratified by history of cannabis use defined by presence of cannabis use disorder or positive cannabinoid urine specimen at any time prior to surgery, or no history of cannabis use. Cohorts were propensity score matched by demographics, nicotine, tobacco, and alcohol use, and tumor stage and primary site. Primary outcomes included tracheostomy dependence, gastrostomy dependence, and opioid use and were compared at three postoperative time points: 3-6 months, 6-9 months, and 9-12 months. Results: After matching, each cohort (cannabis users and non-users) consisted of 532 patients. Cannabis users were more likely to be gastrostomy tube dependent at 3 months (RR: 1.556, 95% CI: [1.187, 2.039]). Preoperative cannabis use increased the risk of prolonged postoperative opioid use at 3-6 months (RR: 1.190, 95% CI: [1.045, 1.355]), 6-9 months (RR: 1.353, 95% CI: [1.133, 1.615]), and 9-12 months (RR: 1.257, 95% CI: [1.040, 1.520]). There was no significant difference in tracheostomy dependence at any timepoint. Conclusions: Head and neck cancer patients with a history of cannabis use are at increased risk of prolonged opioid use after free flap reconstructive surgery, highlighting the need for targeted pain management strategies and closer postoperative monitoring in this patient population.

103. Predictors of 30 Day Mortality Following Surgery in Head and Neck Cancer Patients: A Systematic Review and Meta-Analysis

Srivatsa Surya Vasudevan, MD MS; Razan Qamar, BS; Macie Maddox, BS; Tanisha Patel, BS; Lindsay Olinde, MD; Cherie-Ann O. Nathan, MD FACS

Educational Objective: At the conclusion of this presentation, the participants should be able to systematically evaluate predictors of 30 day mortality following surgery with or without adjuvant therapy in patients with head and neck cancer (HNC). Objectives: To systematically evaluate predictors of 30 day mortality following surgery with or without adjuvant therapy in patients with head and neck cancer (HNC). Study Design: Systematic review and meta-analysis. Methods: A systematic search of PubMed, Web of Science, Embase, and ScienceDirect identified studies on 30 day postoperative mortality and its predictors in head and neck cancer patients undergoing surgery, with or without adjuvant therapy. Pooled multivariate odds ratios (ORs) and 95% confidence intervals (CIs) were calculated using a random effects meta-analysis. Results: Of the 21 included articles, 415,731 head and neck cancer patients who underwent surgery with or without adjuvant therapy were analyzed (mean age: 61.4 years, SD 4.16). Advanced age (≥ 65 years; OR: 1.46, 95% CI: 1.13-1.88, $p=0.003$), renal failure (OR: 4.11, 95% CI: 1.56-10.82, $p=0.004$), Medicaid insurance (OR: 1.81, 95% CI: 1.42-2.30, $p=0.003$), OR: 3.39, 95% CI: 2.14-5.39, $p=0.001$ (OR: 2.34, 95% CI: 1.36-4.04, $p=0.002$), advanced T-stage (T4; OR: 4.21, 95% CI: 3.48-5.10, $p<0.0001$), hypertension (OR: 1.36, 95% CI: 1.15-1.61, $p<0.0001$), history of dyspnea (OR: 1.77, 95% CI: 1.12-2.80, $p=0.02$), current smoking (OR: 1.75, 95% CI: 1.25-2.46, $p=0.001$), anemia (OR: 4.79, 95% CI: 1.17-19.58, $p=0.03$), emergent admission (OR: 1.51, 95% CI: 1.12-2.05, $p=0.01$), and were independently associated with increased 30 day postoperative mortality. Tumor site (larynx/hypopharynx vs. oral cavity; OR: 1.45, 95% CI: 1.11-1.91, $p=0.01$) and treatment at community center programs (OR: 1.06, 95% CI: 1.02-1.10, $p=0.002$) were also significant predictors. Conclusions: This meta-analysis thoroughly examined a wide range of exploratory predictors, including patient, tumor, treatment, and healthcare system factors, linked to 30 day

mortality after HNC surgery.

104. Reducing Postoperative Radiotherapy (PORT) Delay in Head and Neck Cancer Patients Through a Discharge Summary Prompt

Andreja Radevic, BS; Joaquin Austerlitz, BS; Niketna Vivek, BA; Sindhura Sridhar, BS; Whitney Jin, BA; Michael C. Topf, MD MSCI

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize barriers to timely initiation of PORT and apply a simple discharge summary prompt to reduce PORT delay. Objectives: This study evaluates the implementation of an electronic health record (EHR) discharge summary prompt as a quality improvement (QI) initiative to decrease PORT delay in patients undergoing head and neck cancer surgery. Study Design: Retrospective cohort study. Methods: A retrospective review of patients receiving PORT from 2018--2023 was used as a pre-intervention baseline. An EHR based discharge summary intervention was introduced in May 2023. The discharge summary prompt asked providers three questions: "1. Does the patient need adjuvant radiation? 2. Was a radiation oncology referral made? 3. Was a dental referral made?" Patients who underwent head and neck cancer surgery and received PORT before and after the intervention were reviewed. Chi-square analysis was used to determine the association between the QI intervention and PORT delay. Univariate logistic regression analysis was conducted to identify the association of all potential predictors with PORT delay. Multivariate logistic regression was used to identify independent predictors of delayed PORT initiation. Results: The study comprised 393 patients, including 131 in the post-intervention group and 262 in the pre-intervention group. Following implementation of the EHR discharge summary, there was a significant decrease in PORT delay (74.0% pre-intervention vs. 46.6% post-intervention; p less than 0.001). Multivariate logistic regression demonstrated that when controlling for demographic, clinical, and treatment related factors, the QI intervention was independently associated with reduced risk of PORT delay (OR=0.24; 95% CI: 0.13 - 0.43). Conclusions: A simple EHR based discharge summary prompt reduced PORT delay in head and neck cancer patients. While PORT delay is multifactorial in etiology, this study demonstrates how a targeted QI measure may reduce PORT delay within nationally recommended guidelines.

105. Assessing Comorbidity in Head and Neck Cancer Survivors Using the National Health Interview Survey (NHIS)

Erika J. Ren, BS; Jordan R. Salley, MD; Ayush G. Iyer, BS; Dalia N. Mitchell, BS MSCI; Julie Silver, MD; Andrew T. Day, MD MPH

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the epidemiology of comorbidities and comorbidity-related limitations in head and neck cancer (HNC) survivors. Objectives: To characterize the prevalence of comorbidities and comorbidity-related limitations in HNC survivors relative to survivors of other cancers (SOCs) and cancer-free controls (CFCs). Study Design: Cross-sectional analysis of the National Health Interview Survey. Methods: Using pooled NHIS data (1997-2018), HNC survivors were matched to SOCs and CFCs (1:4:4) by sex, age, race/ethnicity, and survey-year. The study was framed by the Charlson-Comorbidity Index and the International Classification of Functioning, Disability, and Health Model. The primary exposure was cancer survivor type (HNC survivors versus SOCs). The primary study outcome was the prevalence rate of any chronic, comorbidity related functional or activity limitation. Weighted descriptive statistics were performed in STATA 18; multivariable analyses were conducted using RStudio. Results: Using weighted data, 112,007 HNC survivors, 470,526 SOCs, and 443,211 CFCs with comorbidity data were identified. Compared to SOCs, HNC survivors had a significantly higher prevalence of angina pectoris (9.4%, 6.1%; $p=0.005$), emphysema (13.4%, 5.6%; $p<0.001$), chronic bronchitis (11.5%, 6.8%; $p<0.001$) any chronic limitation (63.7%, 59.0%; $p=0.045$), and limitations from cancer (27.3%, 12.8%; $p<0.001$), as well as limitations in work (38.2%, 28.9%; $p<0.001$), mobility (52.5%, 46.8%; $p=0.018$), and social functioning (26.7%, 19.0%; $p<0.001$). On adjusted weighted analyses among cancer survivors, cancer related limitations were most significantly associated with being a HNC survivor (relative to SOCs; aOR=2.05; $p<0.001$), being out of the labor force aOR=3.27; $p<0.001$), race and ethnicity other than non-Hispanic White

(aOR=1.84; p<0.001), and pain involving the head, face, or neck (aOR=1.89; p<0.001). Conclusions: These findings underscore the importance of physical medicine and rehabilitation involvement in HNC survivorship care as well as the need to screen for, and address, rehabilitation needs in this population.

106. Arterial Stenosis and Baroreflex Failure--Nationwide Study of Carotid-Driven Autonomic Complications after Head and Neck Cancer Therapy

Hasan Saeed, BSE; Darien Reed, BS; Apoorva T. Ramaswamy, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to 1) identify the nationwide prevalence of carotid injury (structural or baroreflex) and autonomic dysfunction in head and neck cancer (HNC) hospitalizations using ICD-10 coding patterns; 2) interpret the independent impact of these complications on length of stay, hospital charges, and in-hospital mortality, and compare how autonomic versus carotid conditions differ in resource use and risk profiles; and 3) apply these findings to clinical followup by selecting appropriate imaging or hemodynamic surveillance strategies for HNC survivors at highest risk of vascular autonomic sequelae. Objectives: The national burden of carotid related vascular and autonomic sequelae in HNC survivors is poorly characterized. This study aimed to quantify the prevalence, mortality, and hospital impact of carotid injury among HNC patients during inpatient admissions. Defining this unmet burden is essential for surveillance guidelines and targeted resource allocation in the growing HNC survivor population. Study Design: Retrospective cross-sectional analysis of a nationally representative database. Methods: The National Inpatient Sample (NIS) database was queried to identify inpatient admissions in the U.S. between 2017-2022. Admissions of patients with HNC were identified using ICD-10 codes C00-C14 and C30-C32. Autonomic dysfunction was flagged when orthostatic hypotension (I95.1), autonomic dysreflexia (G90.4), or hypotension without a specific cause (I95.89) was diagnosed during an inpatient stay. Carotid disease was flagged when carotid artery stenosis (I65.2x) or cerebral infarction due to carotid occlusion (I63.23x) was coded. Outcomes measured included length of stay, total charges, and in-hospital mortality. Univariable differences were assessed with Welch's t-tests and chi-squared tests. Linear and logistic regressions were fitted, adjusting for age, sex, and Elixhauser comorbidity. Results: Between 2017-2022, 3,876 of 95,282 U.S. HNC admissions (4.1%) carried a carotid-related complication--autonomic dysfunction in 1,983 cases (2.1%), carotid stenosis/infarction in 1,993 (2.1%), and both conditions in 100 (0.1%). Relative to complication free HNC stays, these admissions involved older patients (68.1 years vs. 64.0 years, p=0.0001), greater Elixhauser scores (18.8 vs. 16.2, p=0.0001), longer hospitalizations (8.4 vs 7.04 days, p=0.0001), and higher costs (\$10,9043.77 vs. \$9,7294.92, p=0.0001), while crude mortality was decreased (2.8% vs 3.6%; OR 0.77, p=0.0001). Conclusions: Carotid related injury affects roughly 1 in 25 HNC hospitalizations nationwide. The presence of carotid disease independently adds one extra hospital day and increases hospital charges by over \$1,000. These data suggest utility of post-radiotherapy surveillance of carotid anatomy and autonomic function and support trials aimed at preventing or mitigating radiation induced vascular autonomic injury in the growing HNC survivor population.

107. A Complex Case of Synchronous Papillary and Medullary Thyroid Carcinoma with Mixed Lymph Node Metastases

Danielle Sidelnikov, MD; Eric Dowling, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to elucidate the differentiating characteristics of medullary and papillary thyroid carcinoma as well as identify the diagnostic and treatment challenges that come with patients presenting with synchronous thyroid carcinomas. Objectives: Thyroid cancer, the most prevalent endocrine malignancy, encompasses two distinct pathological subtypes: papillary thyroid carcinoma (PTC) and medullary thyroid carcinoma (MTC). The simultaneous appearance of PTC and MTC in a single patient, a condition known as synchronic occurrence, is exceedingly rare, and mixed lymph node metastases are even rarer. Study Design: A 48-year-old woman presented to clinic for a right -sided mass on her neck. She underwent an ultrasound revealing a 2.7 cm hypoechoic thyroid nodule and lymphadenopathy on the right side. Pathology from a fine needle aspiration biopsy of a lymph node indicated a neuroendocrine neoplasm with immunohistochemical

staining confirming CEA and calcitonin with negative RET germline mutation testing. Methods: The patient underwent a total thyroidectomy, accompanied by bilateral cervical lymph node dissection. Microscopic examination of an ill-defined lesion in the right lobe revealed MTC as well as a 0.1 cm PTC in the left lobe. Of the 46 isolated lymph nodes, 22 were positive for carcinoma. All positive nodes demonstrated evidence of both medullary and papillary carcinoma. Results: Importantly, the presence of mixed lymph node metastases necessitates a more extensive lymph node dissection to ensure complete removal of both MTC and PTC. Fine needle aspiration biopsy, supplemented with immunohistochemical staining, plays a pivotal role in differentiation of PTC and MTC. Furthermore, serum calcitonin and CEA levels serve as valuable markers for MTC. Conclusions: In conclusion, our case underscores the complexity and rarity of synchronic MTC and PTC with mixed lymph node metastases. It highlights the importance of a comprehensive diagnostic approach and a tailored treatment strategy.

108. Comparing Postoperative Outcomes of Parotidectomy Techniques for Small and Large Parotid Tumors: A Retrospective Review in an Urban Tertiary Care Setting

Ariella D. Simoni, BS; Raena Greenbaum, BA; Shaynie Segal, BA; Richard V. Smith, MD

Educational Objective: At the conclusion of this presentation, the participants should understand the advantages of extracapsular dissection and the potential benefit of expanding its indication to include tumors larger than 4cm. Objectives: Extracapsular dissection (ECD) for treatment of parotid tumors has been shown to be associated with fewer postoperative facial nerve complications than traditional parotidectomy, and little is known about its use in larger tumors. This study aims to assess whether ECD is associated with fewer complications and whether it could be appropriate for treating tumors larger than 4cm. Study Design: Retrospective cohort study. Methods: Records were reviewed for 168 patients who underwent parotid surgery for a suspected benign tumor between 2011 and 2024 by a single surgeon. Outcomes related to postoperative course and followup period were compared between ECD and traditional parotidectomy (partial superficial parotidectomy, superficial parotidectomy, total parotidectomy, or deep lobe excision), with separate comparison among a subgroup of tumors which were larger than 4cm on preoperative imaging. Results: Patients who underwent ECD were significantly less likely to experience unplanned facial nerve weakness (4.0% vs 24.6%, $p < 0.001$), less likely to require hospital admission or drain placement ($p < 0.001$) and had a shorter followup period (56 vs. 149 days). Fourteen patients had tumors larger than 4cm, and among these, 7 were treated with ECD. No patients with large tumors treated with ECD had facial nerve complications, while 2 of 7 treated with traditional parotidectomy experienced unplanned facial nerve weakness. Conclusions: ECD was associated with significantly fewer incidences of facial nerve complications, with evidence that these benefits may be maintained for tumors larger than 4cm. This suggests that ECD may be an appropriate approach for large parotid tumors.

109. Cutting Through the Narrative: Synoptic Operative Reports in Head and Neck Surgery

Avery N. Sinnathamby, BSA; Yi-Ju Chiang, MSPH; Carol M. Lewis, MD MPH; Jeffrey N. Myers, MD PhD; Miriam N. Lango, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to evaluate the clinical utility of synoptic operative reports compared to narrative documentation, including variations across surgical procedures; Identify key elements and common gaps that influence successful utilization and completeness of synoptic operative reports, along with strategies to improve accuracy and explore how standardized operative documentation can drive advances in quality improvement, research, and artificial intelligence in health care. Objectives: To evaluate the completeness and clinical utility of synoptic operative reports in head and neck ablative surgery. Study Design: Single-institution retrospective quality improvement study. Methods: Procedure and tumor-specific synoptic templates were developed through subspecialty group consensus to include adaptive, context specific critical data elements that were integrated into operative forms in the electronic health record. Narrative reports were nevertheless required for legal and billing purposes. Cases performed between January - May 2025 were reviewed, comparing information in the synoptic report and narrative findings. We hypothesized that information perceived as important by the surgeon would be included in the narrative findings if not included in the synoptic

form. Results: In total, 251 cases by 21 surgeons using synoptic procedure specific templates in thyroid, oral cavity, cutaneous, ear/ lateral skull base, oropharynx, larynx/hypopharynx, salivary, and anterior skull base procedures were included. Incomplete synoptic documentation occurred in 6.8% of cases. Overall, in 84 cases (33.5%), information not available in the synoptic form was added separately in the narrative findings. Of 31 cutaneous cases, only 2 (6.5%) contained narrative documentation beyond that reported in the synoptic form. In contrast, in documenting oral cavity resections, surgeons added information not in the synoptic form in 37/77 cases (48.1%), including details on preoperative or intraoperative pathology (51.4%) and/or tumor size (24.3%). Collectively, providers supplied redundant synoptic report content in the narrative documentation in 86.1% of cases. Conclusions: While synoptic operative reports improve efficiency and standardization in head and neck surgery documentation, ongoing iterative study cycles to adjust forms to capture meaningful information and targeted surgeon education are needed. Legal and billing issues should be explored. Broader adoption will likely strengthen data quality for clinical care, research, and future artificial intelligence integration.

110. The Role of Glucagon-like Peptide 1 Receptor Agonists in the Medical Management of Idiopathic Intracranial Hypertension and Spontaneous Cerebrospinal Fluid Leaks - A Review of the Literature and Case Series

Alisha E. Suri, BSc; Samuel A. Collazo, MD; Jonathan Liang, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the role of GLP-RAs as a possible pharmacologic adjunct to current standard of care management strategies for IIH and spontaneous CSF leaks, as well as better understand the relationship between weight loss, IIH and skull base dehiscence. Objectives: To evaluate the potential role of glucagon-like peptide 1 receptor agonists (GLP-1 RAs) in the medical management of idiopathic intracranial hypertension (IIH) and spontaneous skull base cerebrospinal fluid (CSF) leaks through a literature review and multi-institutional case series. Study Design: Systematic review and case series. Methods: A comprehensive review of PubMed and Medline was performed to identify primary studies reporting clinical, radiographic, or physiologic outcomes of GLP-1 RA use in IIH. Separately, a retrospective chart review was conducted at our hospital to identify patients with spontaneous skull base CSF leaks, strong IIH suspicion, and ≥ 3 months of concurrent GLP-1 RA therapy. Clinical and radiologic data, treatment course, and outcomes were extracted. Results: 5 studies encompassing 5,554 patients were included. GLP-1 RA therapy was consistently associated with weight loss, headache reduction, visual symptom improvement, decreased acetazolamide use, fewer neurosurgical interventions, and, in one randomized trial, reduced intracranial pressure. Three patients met case series inclusion criteria. Each demonstrated clinical and radiographic signs of chronically elevated ICP. All experienced meaningful weight loss and symptom improvement on semaglutide, with two exhibiting symptom recurrence after discontinuation. Visual function remained intact in all cases. Conclusions: GLP-1 RAs may offer dual benefit in IIH related spontaneous skull base CSF leaks by promoting weight loss and modulating ICP. These findings highlight a potential noninvasive adjunct to surgical repair and underscore the importance of high clinical suspicion for IIH in obese patients presenting with CSF leaks in otolaryngologic practice.

111. Donor Morbidity and Upper Extremity Outcomes in Osteocutaneous and Fasciocutaneous Radial Forearm Free Flap Reconstruction

Brooke Swain, BS; Sindhura Sridhar, BS; Whitney Jin, BA; Michael C. Topf, MD MSCI; Sarah L. Rohde, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to compare patient reported upper extremity function following osteocutaneous and fasciocutaneous radial forearm free flaps. Objectives: The fasciocutaneous radial forearm free flap (RFFF) is widely used for head and neck soft tissue reconstruction. Osteocutaneous radial forearm free flaps (OCRFFF) enable bony reconstruction, but concerns for donor site morbidity have limited their use. This study compares upper extremity function after RFFF versus OCRFFF at a high volume institution. Study Design: Single institution, combined prospective and retrospective cohort study. Methods: Patients who underwent RFFF or/and OCRFFF between 2010-2023 were surveyed by phone. Upper

extremity function was assessed using the Quick Disabilities of the Arm, Shoulder, and Hand (QuickDASH) survey (0-100 scale, with higher scores indicating greater disability). Responses were compared with demographic, clinical, and surgical characteristics from the medical record. Patients who were nonverbal or had no followup since 2021 were excluded. QuickDASH scores were analyzed using ANOVA with post-hoc Tukey test, and clinical associations were assessed using univariate linear regression. Results: The cohort included 26 RFFF, 18 OCRFFF, and 3 patients who underwent both flaps. At a median followup of 3.26 years (range 0.64 -12.76), mean QuickDASH scores were higher among OCRFFF patients (23.9) compared with the RFFF (10.7) and both flap (18.2) groups, suggesting a trend towards greater functional limitation in OCRFFF cases ($p=0.1$), although impairment remained low. History of depression was associated with higher QuickDASH scores (coef 12.7, 95% CI: 1.23-24.48). Conclusions: OCRFFF patients exhibit a trend toward increased donor site functional limitations compared to RFFF, but overall impairment is minimal. History of depression is associated with worse self-reported upper extremity function.

112. Socioeconomic Disparities in Definitive Chemoradiation with Proton Beam Therapy for Oropharyngeal Squamous Cell Carcinoma

Jane Y. Tong, MD; Vera Bzhilyanskaya, BS; Jason K. Molitoris, MD PhD; Matthew J. Ferris, MD; Kyle M. Hatten, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe socioeconomic variables associated with disparities in receipt of proton radiation in the definitive chemoradiation setting for treatment of oropharyngeal squamous cell carcinoma at our institution. Objectives: Definitive chemoradiation is the standard of care for unresectable or locally advanced oropharyngeal squamous cell carcinoma (OPSCC). Although proton beam therapy (PBT) may offer a more favorable toxicity profile than intensity modulated radiation therapy (IMRT), its higher cost and limited availability may predispose to disparities in access. This study examines sociodemographic factors associated with receipt of PBT in the definitive chemoradiation setting for OPSCC. Study Design: Retrospective review of patients treated with definitive chemoradiation between January 2016 and December 2024 at a tertiary care center. Methods: Demographics, disease characteristics, and treatment details were extracted from electronic medical records. U.S. Census Bureau datasets were used to estimate income and poverty levels based on zip code. Results: Among 122 patients treated with definitive chemoradiation, 59.0% received PBT and 41.0% received IMRT. Median age was 64 years. 85.2% were male. 82.8% were white and 13.1% were African American. 87.7% had HPV associated disease. 44.4% were privately insured, and 35.2% were employed full time. 77.9% were alive at last followup. Treatment with PBT was significantly associated with private insurance ($p = 0.023$), full time employment ($p = 0.030$), and survival ($p = 0.029$). While race was not associated with radiation modality ($p = 0.499$), African American patients were more likely to reside in zip codes with higher poverty rates ($p < 0.001$). Use of PBT increased significantly over the study period ($p = 0.017$). Conclusions: Use of PBT for OPSCC has increased, and its significant association with private insurance and full time employment highlights potential socioeconomic barriers to equitable access.

113. Patient Compliance with Scheduled Appointments for Human Papillomavirus Related Oropharyngeal Cancer

John Matthew Vieth, BS; Anthony Mangino, PhD; Melina Windon, MD; Joseph Valentino, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize factors associated with appointment noncompliance in patients with HPV related oropharyngeal squamous cell carcinoma (HPV-OPSCC). Objectives: Our analysis of the HPV-OPSCC population's cancellation and no show rates are significantly higher than our institutional rates. Identifying demographic and clinical predictors for increased risk of missed appointments is the first step in designing interventions to avoid delays in care affecting therapeutic outcomes. Study Design: Retrospective review of appointment data from an academic medical center. Methods: All patients 18 years of age or older with p16-positive HPV-OPSCC who scheduled appointments between January 1, 2013, and April 1, 2023, were included. Appointment level data (show, no show, cancellation), clinical variables (tumor stage,

site), and demographic variables (age, sex, race, ethnicity, smoker status, insurance type) were analyzed. Primary outcome was noncompliance, defined as no show without cancellation. Results: Across 36,579 encounters in 334 p16-positive HPV-OPSCC patients, the no show rate was 4.6% (n = 1,627) and the cancellation rate was 31.0% (n = 11,081). Multivariable generalized estimating equations identified younger age (p < 0.001), African American/Black race (p = 0.009), tonsillar tumor location (p = 0.001), undefined tumor stage (p = 0.005), and public insurance type (Medicaid: p < 0.001; Medicare Advantage: p = 0.029) as significant predictors of appointment non-compliance. Results were consistent across unadjusted and adjusted analyses. Conclusions: Specific subgroups have increased risk for noncompliance. Sociodemographic and disease specific factors may contribute to gaps in continuity of care. Efforts to reduce disparities in appointment adherence may reduce treatment delays and enhance outcomes in patients with HPV-OPSCC.

114. Comparative Utility of the Risk Analysis Index and Modified Frailty Index-5 in Predicting Outcomes Following Maxillectomy

Akshay Warriar, BA; Rushikesh Pande, BS; Ariana Shaari, MD; Christian Bowers, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the comparative predictive performance of the Risk Analysis Index (RAI) versus the Modified Frailty Index (mFI-5) for adverse postoperative outcomes in maxillectomy patients Objectives: To evaluate and compare the utility of RAI and mFI-5 for risk stratification in patients undergoing maxillectomy. Study Design: Retrospective cohort study Methods: Maxillectomy patients from the 2005-2020 ACS-NSQIP database were identified using relevant CPT codes (21040, 21044, 21045, 21046, 21047, 21049). Frailty was assessed using both the RAI and mFI-5. Patients were stratified accordingly, and multivariable logistic regression models evaluated associations between frailty and 30-day outcomes, including extended length of stay (eLOS) and non-home discharge (NHD). ROC curves were not performed due to the non-significance of mFI in preliminary models. Results: A total of 968 patients were included (mean age 62.3 years; 35.7% female; 59.2% White). On multivariate analysis, RAI ≥ 30 was independently associated with both eLOS (OR: 3.49, 95% CI: 1.00-12.18, p=0.05) and non-home discharge (OR: 12.38, 95% CI: 3.62-42.38, p<0.001). In contrast, mFI was not significantly associated with either outcome (p=0.643 and 0.43, respectively). Conclusions: In maxillectomy patients, RAI was a significant predictor of both prolonged hospitalization and discharge disposition, whereas mFI-5 showed no significant associations. These findings highlight the RAI as a superior frailty metric for surgical risk stratification in complex craniofacial procedures. Broader implementation of RAI in preoperative assessments may aid in anticipating complications and optimizing perioperative planning in head and neck oncologic surgery.

115. Comparative Utility of the Risk Analysis Index and Modified Frailty Index-5 in Predicting Outcomes Following Parotid Surgery

Akshay K Warriar, BA; Rushikesh Pande, BS; Diana Shaari, BA; Ariana L. Shaari, MD; Christian Bowers, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to evaluate how the Risk Analysis Index (RAI) compares to the Modified Frailty Index (mFI-5) in predicting postoperative outcomes in mandibulectomy, and its implications for frailty screening in head and neck oncologic surgery Objectives: Compare the predictive capacity of RAI and mFI-5 for adverse outcomes following mandibulectomy. Study Design: Retrospective cohort study. Methods: ACS-NSQIP data from 2005-2020 were queried for patients undergoing mandibulectomy. Frailty was assessed using RAI and mFI-5, with patients stratified into frailty risk groups. Multivariable logistic regression evaluated associations between frailty and 30-day outcomes: mortality, Clavien-Dindo (CD) complications, wound dehiscence, prolonged length of stay (eLOS), and non-home discharge. ROC analysis was not performed due to limited discrimination for the selected outcomes. Results: Of 2,956 patients (mean age 63.9 years; 32.4% female; 70.2% White), both RAI ≥ 30 and elevated mFI-5 independently predicted increased risk of 30-day mortality (RAI OR 8.427, mFI OR 3.891), CD II (RAI OR 3.083, mFI OR 1.615), CD IV (RAI OR 9.287, mFI OR 7.786), eLOS (RAI OR 4.663, mFI OR 4.222), and non-home discharge (RAI OR 15.062, mFI OR 8.067) (all p<0.05). Only RAI predicted wound dehiscence (p=0.002 vs. mFI p=0.259). Conclusions: Both RAI and mFI-5 predict adverse outcomes after

mandibulectomy, but RAI demonstrates stronger associations and uniquely identifies risk for wound complications. RAI may be a more robust tool for preoperative risk stratification in head and neck oncologic surgery.

LARYNGOLOGY/BRONCHESOPHAGOGY

116. An Early Analysis of the Impacts of a Dedicated Inpatient Adult Tracheostomy Team on Optimized Tracheostomy Care

Michael A. Amano, BA; Shreya Mandava, MD; Dawn Swatsenbarg, BSN MS PA-C; Kayla Erwin, BS MHA RRT; Robert J. Morrison, MD FACS

Educational Objective: At the conclusion of this presentation, the participants should be able to characterize the scope and impact of a newly implemented inpatient multidisciplinary adult tracheostomy team on tracheostomy related clinical outcomes and best practice guideline adherence. Objectives: Recognize multidisciplinary teams' ability to optimize patient care by enhancing efficiency, improving patient safety, and standardizing care delivery; establish a baseline for future analysis of dedicated tracheostomy team impact on key clinical outcomes and healthcare resource utilization. Study Design: Retrospective cohort study. Methods: The cohort includes adult patients admitted to a tertiary center between October 2024 and April 2025, who were evaluated by an inpatient adult tracheostomy team composed of an advanced practice provider, respiratory therapist, and faculty otolaryngologist. Demographic data and metrics related to (1) key clinical outcomes, (2) tracheostomy related complications, and (3) best practice measures were analyzed. Results: Ninety patients were evaluated in the study period; 85 met inclusion criteria. Mean hospital stay was 35.5 days, with 41.2% of patients undergoing primary tracheostomy. Managed complications included tracheostoma breakdown/wound care (63.5%), tube obstruction (23.5%), granulation tissue (22.4%), respiratory distress (15.3%), and tracheitis (14.1%). Among primary tracheostomy patients, 45.7% underwent a capping trial, with 75% decannulated after 58.9 days on average. Routine tracheostomy changes were performed in 45 patients (52.9%), 25 of whom had not undergone changes within 30 days prior. Best practice guideline adherence was improved, requiring addition of difficult airway flags (27.1%), notes (48.1%), and orders (15.3%). Thirty-day readmission was 20.0%, with 29.4% tracheostomy related. Conclusions: This early analysis demonstrates the broad impact of a dedicated inpatient adult tracheostomy team in comprehensive tracheostomy management, establishing a crucial baseline for future studies.

117. Cystic Fibrosis-like Mucosecretory Disease Increases Airway Fibrosis and Inflammation During Epithelial Regeneration in vivo

Jazmin Calyeca, PhD; Sayali Dharmadhikari, MS; Kangrui Li, BS; Rheanna Velasquez, BS; Susan D. Reynolds, PhD; Tendy Chiang, MD

Educational Objective: At the conclusion, participants should have a better understanding of the airway epithelial repair mechanisms in a cystic fibrotic (CF)-like microenvironment. Objectives: Investigate epithelial repair in a mouse model of CF-like mucosecretory disease, characterized by the transgenic overexpression of β ENaC-Tg in club cells. Study Design: Small animal microsurgical model of airway epithelial injury. Methods: Epithelial injury was induced in a focal region of the trachea in CF-like transgenic mice (β ENaC-Tg) and C57Bl6 (WT) mice (N=4). Injury extent and signs of fibrosis/stenosis were evaluated using histology and Masson's trichrome staining. One month after injury, airways were explanted and immunofluorescence was performed to visualize the cellular microenvironment, with a specific focus on the epithelium (KRT5+ basal cells, and ACT+ ciliated cells), activated fibroblasts (Vim+, CTHRC1+), and immune cells (CD45, Neutrophil Elastase). Results: Histological quantification confirmed similar injury in WT (46.6+/-7.2) and β ENaC-Tg (57.1+/-12.8) ($p=0.1485$) mice. Further assessment of epithelial regeneration using immunostaining demonstrated comparable regeneration between β ENaC-Tg and WT mice at one month post-injury. Despite similar epithelial repair, β ENaC-Tg mice exhibited prominent airway pathology, characterized by dense neutrophil infiltrates. In addition, β ENaC-Tg mice showed significantly elevated collagen deposition and fibrotic remodeling relative to WT controls. Consistent with these observations, the abundance of activated collagen

producing fibroblasts was increased in β ENaC-Tg mice compared to their WT counterparts. Conclusions: Our data provide a comprehensive assessment of how the CF-like microenvironment influences airway regeneration. We report that this microenvironment promoted airway remodeling characterized by neutrophil infiltration, increased presence of activated fibroblast, and increased fibrosis.

118. Botox Treatment for Adductor Laryngeal Dystonia Reduces Speech Related Cognitive Load

Joseph Chang, MD; Nede Ovbiebo, BS; Christine H. Lo, MPH; Tanya K. Meyer, MD; Tanya L. Eadie, PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss potential components of vocal effort. Objectives: Botox treatment has previously been shown to improve voice quality, quality of life, and the physical component of vocal effort in adductor laryngeal dystonia (ADLD) patients. More recently, cognitive load has been identified as a contributor to vocal effort in ADLD patients. This study aims to identify the effects of Botox on speech related cognitive load and the association of cognitive load with voice related quality of life. Study Design: Prospective cohort study. Methods: A prospective study of ADLD patients undergoing Botox treatment was conducted. NASA Task Load Index (NASA-TLX), the Voice-Related Quality of Life (VRQOL) scale, and voice recordings were obtained on the day of, 1 week after, and 4-6 weeks after Botox injection. Auditory perceptual evaluation of the voice samples was performed by four speech language pathologists. Results: 21 patients completed all measures and voice recordings. Mental and physical demand NASA-TLX subscales decreased by 4-6 weeks ($p=0.001$ and 0.019 , respectively). Median VRQOL improved from 40 to 68 by 4-6 weeks post injection (p less than 0.001). On multilevel multiple linear regression, mental demand and overall voice quality correlated with VRQOL ($p=0.003$ and 0.001 , respectively), but physical demand did not ($p=0.16$). Conclusions: Laryngeal Botox injection reduces cognitive load associated with speaking in ADLD patients. Cognitive load may be more impactful to voice related quality of life than the physical effort associated with speaking.

119. Assessing the Impact of Serial Intralesional Steroid Injection on the Surgery Free Interval in Subglottic Stenosis

Kyle E. Cook, BS; David Ahmadian, MD; Troy Weinstein, BS; Vicki Liu, BS; Shivani Patel, BS; Helena Yip, MD

Educational Objective: At the conclusion of this presentation, participants should understand the role of serial intralesional steroid injection (SILSI) in extending the surgery free interval (SFI) for patients with subglottic stenosis (SGS). Objectives: To evaluate the efficacy of SILSI in prolonging the surgery free interval in SGS through a systematic review and meta-analysis of current literature. Study Design: Systematic review and meta-analysis. Methods: A systematic search of PubMed, Embase, and Scopus was conducted using PRISMA guidelines with search terms "SILSI" and "subglottic stenosis". Articles were screened by two independent reviewers at the title, abstract, and full text levels. Inclusion criteria required English language full text articles reporting clinical outcomes in SGS patients treated with SILSI, including pre- and post-intervention SFI data. Extracted data included number of patients, mean age, sex distribution, SGS etiology, number of injections, complications, and clinical outcomes. Results: The search yielded 3,182 articles, with 665 remaining after title screening. Eight studies were included in the final analysis, representing 299 patients with a mean age of 50.9 years. Among those with reported sex, 40 were male and 148 were female. Pooled data show an increase in mean SFI from 338.97 days pre-SILSI to 656.38 days post-SILSI. Notably, 64.02% of patients did not require further surgery following SILSI. SFI values reflect only those who underwent additional surgery, as SFI cannot be calculated for patients with no further intervention. No major complications were reported. Conclusions: SILSI appears to be a promising, minimally invasive adjunct in the management of SGS, potentially doubling the surgery free interval and significantly reducing the need for repeat surgical intervention.

120. In-Office Steroid Injections for Idiopathic Subglottic Stenosis: A Systematic Review

Eric Delgado Rendon, BS; Nawfal Saleem, BS; Natalie Weiss, MD MBA; Amy Rutt, DO

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the

current evidence on in-office steroid injection for idiopathic subglottic stenosis, including treatment variability, clinical outcomes, and complications. Objectives: To clarify reported treatment patterns; highlight clinical and vocal outcomes of treatment and understand the safety profile of in-office serial intralesional steroid injection (SILSI) in adults diagnosed with idiopathic subglottic stenosis (iSGS). Study Design: Systematic Review. Methods: A systematic literature search was conducted in MEDLINE, Embase, CENTRAL, CINAHL Ultimate, and ClinicalTrials.gov from inception to April 5, 2025. Studies were included if they reported clinical outcomes of in-office SILSI in adult patients with iSGS. Two reviewers independently screened articles, extracted data, and assessed risk of bias using the JBI checklists. Results: Fourteen studies (n=371 patients) met inclusion criteria. Triamcinolone was the most commonly used steroid. Protocols varied in dosage, frequency, and number of injections. SILSI was associated with improvements in surgery-free interval (SFI), peak expiratory flow, dyspnea scores, and voice-related outcomes across several studies. No serious complications were reported. However, significant heterogeneity in treatment regimens and outcome measures was observed, precluding meta-analysis. Conclusions: SILSI appears to be a promising, safe adjunct in the treatment of iSGS, with demonstrated improvements in respiratory and voice outcomes. However, inconsistent protocols and reporting limit definitive conclusions. Standardized, prospective studies are needed to better define its role in clinical practice.

121. Evaluating Laryngeal Deposition of Inhaled Corticosteroids in Normal Airway Anatomy Using Computational Modeling

Kerry Gao, BA; Seth Cohen, MD; Dennis Frank-Ito, PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the limitation of currently available Inhaled corticosteroids (ICS) in targeting the larynx. Objectives: Laryngeal mucosal disorders frequently occur in patients with anatomically normal airways, where macroscopic structural abnormalities are absent or below radiographic detection thresholds. These conditions, often driven by inflammatory, infectious, or immune-mediated processes, may benefit from direct topical therapy. Inhaled corticosteroids (ICS) are commonly employed in such cases; however, current ICS formulations are optimized for pulmonary delivery, and limited data exist on their deposition within the laryngeal airway. This study aimed to evaluate the laryngeal deposition patterns of commercially available ICS, ciclesonide (CIC) and fluticasone propionate (FP); and assess the influence of particle size on regional laryngeal deposition. Study Design: In silico computational fluid and particle dynamics modeling using a subject-specific upper airway. Methods: A three-dimensional airway model extending from the oral cavity to the trachea was reconstructed from high-resolution CT imaging of a healthy adult. Simulations of gentle oral inhalation (15 L/min) were performed using manufacturer reported aerosol characteristics for CIC and FP. The larynx was segmented into the glottis, subglottis, and upper trachea. Modified particle sizes were also tested to assess deposition variability. Results: Standard CIC and FP formulations exhibited negligible glottic deposition (0.016% and 0%, respectively). CIC showed minimal subglottic (0%) and FP modest upper tracheal deposition (0.033%). Particles in the 6-10 μm range improved subglottic (0.092%) and upper tracheal (0.157%) delivery, though glottic deposition remained absent. Conclusions: ICS deposition in the larynx is minimal with current pulmonary-directed formulations. Modifying particle size may enhance subglottic targeting, highlighting the need for larynx-specific drug delivery systems.

122. Cricoid Abscess: Case presentation, Management, and Literature Review

Peter Shah Giannaris, BS; Caroline Casey, MD; Seth Kaplan, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the clinical presentation of cricoid abscess, understand its common etiologies, and implement appropriate diagnostic and management strategies to avoid long-term airway complications. Objectives: Cricoid abscess is an extremely rare deep neck space infection with limited reported cases. This study reports a rare case of cricoid abscess and literature review to better define its clinical presentation, diagnostic features, management strategies, and long-term outcomes.

Study Design: This study includes a single-institution case report integrated with a literature review. **Methods:** A 53-year-old male developed progressive dyspnea and hoarseness following prolonged intubation for pulmonary edema. Computed tomography revealed a gas and fluid filled laryngeal mass concerning for malignancy. The patient underwent direct laryngoscopy, surgical drainage, and tracheostomy. Biopsies were negative for malignancy. Cultures revealed a diverse polymicrobial infection, which informed targeted antibiotic therapy. A comprehensive literature review was performed to identify additional cases and summarize clinical patterns, radiologic features, interventions, microbiologic findings, and outcomes. **Results:** Six total cases of cricoid abscess were identified, including the present case. Most were associated with recent intubation and presented with dyspnea, hoarseness, and stridor. Imaging often mimicked neoplasms, leading to delayed diagnoses. All patients underwent tracheostomy; the majority also required surgical drainage. Our case showed cricoarytenoid joint involvement with cricoid cartilage destruction, extensive edema, and mucosal changes. It also featured the most diverse polymicrobial infection reported to date. Despite airway compromise and an extended recovery, the patient was successfully decannulated following prolonged antibiotic treatment and supportive care. **Conclusions:** Cricoid abscess is a rare but serious complication of intubation that can mimic malignancy and delay diagnosis. Early recognition, airway protection, surgical drainage, and appropriate antimicrobial therapy are critical to avoid irreversible laryngeal damage and enhance functional recovery.

123. Improving the Efficiency of the Chronic Cough Work-up: From Diagnosis to Treatment Using a Standardized Checklist

Alison Hawkins, BA; Karuna Dewan, MD; Sarah Quintana, MS CCC-SLP

Educational Objective: At the end of the presentation the audience will identify barriers to treatment of chronic cough. In addition, audience members will be able to understand the benefits of implementing a coordinated checklist in the workup of chronic cough. **Objectives:** This study evaluates the impact of implementing a chronic cough checklist on the efficiency and effectiveness of diagnosis and treatment in a tertiary care otolaryngology clinic. **Study Design:** Retrospective chart review. **Methods:** A chronic cough checklist developed by Sandage et al. was introduced in February 2023. This retrospective chart review compared 40 randomly selected chronic cough patients--20 treated before and 20 after checklist implementation. Data collected included patient demographics, number of visits with speech language pathology (SLP), specialty referrals, medications trialed, diagnostic procedures performed, and pre- and post-treatment scores on the Cough Severity Index (CSI) and Voice Handicap Index-10 (VHI-10). **Results:** Following checklist implementation, patients required significantly fewer SLP visits ($p=0.03$) and trialed fewer medications before identifying effective treatment ($p=0.02$). Additionally, patients managed with the checklist showed a significantly greater reduction in CSI scores ($p=0.05$) and lower post-treatment VHI-10 scores ($p=0.05$). However, no significant differences were found in the total number of ENT visits, specialty referrals ($p=0.09$), or diagnostic procedures performed ($p=0.06$). **Conclusions:** The chronic cough checklist improved the efficiency of treatment by reducing unnecessary medication trials and SLP visits, while also enhancing patient reported outcomes. However, it did not significantly shorten the overall diagnostic process in terms of referrals or procedures. These findings suggest that standardized tools like checklists can play a meaningful role in optimizing chronic cough management. Further studies with larger sample sizes are warranted to validate these results and explore broader applicability.

124. Associations of Frailty, Cognition, and Peak Air Flow with Communication Impairments in Older Adults: A Cross-Sectional Study of the NHATS Database

Linh He, BS; Vinayak Ganesan, BS; Alexandra Li, BS; Anais Rameau, MD MSc MPhil MS FACS

Educational Objective: At the conclusion of this presentation, the participants should be able to 1) describe how communication impairment was defined and measured in the NHATS dataset; 2) identify the associations between communication impairment and frailty, cognitive status, and pulmonary function (PEF) in older adults; and 3) discuss the potential role of communication impairment as a clinical marker of systemic physiological decline

and its relevance for multidisciplinary geriatric care. Objectives: Communication impairment may be related to language, motor speech and voice disorders. In older adults, communication impairment may reflect physiological decline, including cognitive decline, frailty, or respiratory compromise. This study evaluates associations between communication impairment and frailty, pulmonary function, and cognition within a national sample. Study Design: Cross-sectional study. Methods: We analyzed data from round 12 (2023) of the National Health and Aging Trends Study (NHATS), a nationally representative survey of Medicare beneficiaries. Communication impairment was evaluated through self-report. Frailty was assessed using the physical frailty phenotype. Cognition was measured across memory, orientation, and executive function. Peak expiratory flow (PEF) was classified as low when z-score, based on reference equations for age, sex, and height, was ≤ -2 . Multivariate logistic regression models evaluated associations between communication impairment and frailty, cognition, and PEF while adjusting for demographic variables, including age, gender, and race/ethnicity. Results: Of 5,897 participants (weighted N = 50.8 million), 435 (weighted N = 3.1 million) reported communication impairment (median age, 80 years; 61% female). Compared to robust individuals, pre-frail (aOR 3.96, 95% CI 2.41-7.03) and frail (aOR 8.64, 95% CI 5.15-15.6) participants had greater odds of communication impairment. Low PEF (aOR 2.68, 95% CI 2.06-3.46), cognitive impairment (aOR 1.91, 95% CI 1.40-2.59), and dementia (aOR 1.74, 95% CI 1.06-2.72) were also significantly associated. Conclusions: Communication impairment was significantly associated with frailty, low PEF, and cognitive decline among older adults. This suggests communication impairment may be an early marker of systemic deterioration and should prompt multidisciplinary geriatric evaluation.

125. Dynamic Flow Decellularization Preserves Chondrocyte Functionality in Partially Decellularized Tracheal Grafts

Nathaniel Hochuli, BS; Lumei Liu, PhD; Kangrui Li, BS; Tendy Chiang, MD

Educational Objective: At the conclusion of this presentation, the participants should understand the advantages of using bioreactor assisted dynamic flow decellularization to preserve chondrocyte function in partially decellularized tracheal grafts (PDTG). Objectives: PDTG hold promise for long segment tracheal replacement by preserving chondrocytes and extracellular matrix (ECM) while removing immunogenic cells. However, clinical outcomes remain suboptimal. Although viable chondrocytes are retained, their functional capacity remains unclear. In this study, we aimed to quantify and compare chondrocyte function of bioreactor derived PDTG fabricated using dynamic flow decellularization (PDTGBioR) and conventional PDTG (PDTGConv). Study Design: Bioreactor, large animal PDTG. Methods: Native tracheae (NT) were harvested from New Zealand white rabbits (N=3) for chondrocyte culture, and fabrication of PDTGBioR (N=4) and PDTGConv (N=4). Collagen and glycosaminoglycans of cartilage were quantified. TUNEL assay assessed chondrocyte viability. Chondrocytes from PDTG and NT were cultured to passage 3 for functional assessment via collagen 2 (Col2) amount and colocalization (Pearson's coefficient) of Sox9 with Col2 and nuclei (DAPI). Quantified data were statistically compared using ANOVA. Results: PDTGBioR and PDTGConv preserved ECM components. PDTGConv (59.88 +/- 8.58%) reduced chondrocyte viability compared to NT (99.32 +/- 1.077%; p=0.0059) and PDTGBioR (81.24 +/- 4.626%; p=0.0174). Chondrocytes at each passage demonstrated colocalization equivalency of Sox9/DAPI and Sox9/Col2 between PDTGBioR and NT, whereas both exhibited significantly higher colocalization than PDTGConv (p<0.01). Col2 area per cell remained constant through all 3 passages of NT and PDTGBioR versus a significant increase in PDTGConv in passages 2 and 3. Conclusions: Chondrocyte function in bioreactor derived PDTG is similar to NT when compared to conventional PDTG, which may aid in clinical translatability.

126. Precision Cut Tracheal Slices: A Novel ex vivo Model System to Study Airway Fibrosis

Anne M. Krebs, HS; Jazmin Calyeca, MS PhD; Emily Schaaf, HS; Samara Buchanan, HS; Tendy Chiang, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the utility of Precision Cut Tracheal Slices (PCTrS) as a novel tool in evaluating fibrosis. Objectives: Investigate the effect of glycolytic inhibitors modulating the fibrotic response in a mouse model of deficient ECM remodeling using PCTS

as a disease/translational model. Study Design: Ex vivo model of mouse PCTS. Methods: Trachea was explanted to generate 600 um thick slices from CTHRC1 and WT mice. The extracted slices were cultured for 4 days in completed culture media (DMEM-F12 /1% FBS/1% Pen-Strep). Except for controls, samples were pre-treated with TGF- β on day 1. On day 3, 2-deoxy-D-glucose (2DG) was added to selected wells. The media was changed every other day. Viability was determined with Presto Blue, and collagen content was measured using Masson's Trichrome staining. Results: Glycolytic inhibition (2DG) significantly decreased viability in CTHRC1 KO samples compared to their WT counterparts (WT=100%, KO=50.7%). Histological analysis revealed, similar collagen levels between KO and WT, at baseline. However, after TGF- β pre-treatment, collagen content increased in WT but not KO. While 2DG suppressed TGF- β induced collagen deposition in WT, it had no effect on PCTrS from the CTHRC1-deficient mice. Conclusions: Our study revealed that TGF- β increased collagen content in WT, but has a mild effect on CTHRC1 KO trachea, suggesting decreased fibrotic response in CTHRC1 KO. Our future studies will explore the fibroblast activity using PCTS to validate this model and reduce reliance on in vivo mouse studies.

127. Healthcare Utilization and Outcomes in Patients by Vocal Fold Paralysis Subtype: A National Inpatient Analysis

Emily Kwon, BA; Saharsh Talwar, BS; Wayne Hsueh, MD; Rachel Kaye, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe how vocal fold paralysis subtypes and comorbidities, particularly cardiac conditions, influence hospitalization outcomes. Objectives: To evaluate how subtypes of vocal fold paralysis/paresis (VFP) influence pediatric inpatient healthcare utilization and outcomes. Study Design: Retrospective cross-sectional analysis. Methods: Using 2003-2019 Kids' Inpatient Database, we compared hospitalization characteristics between vocal fold complication subgroups: unilateral paresis, unilateral paralysis, bilateral paresis, bilateral paralysis, and unspecified paralysis. We compared subgroup demographic factors and adjusted for cardiac comorbidities. Groups were then compared for region, seasonality, hospital charges, length of stay (LOS), and mortality using frequency functions and multivariate analyses. Data analyses were performed using SPSSv29. Results: 15,687 patients were identified. Unilateral paresis was most common (49.2%), followed by unilateral paralysis (10.4%), bilateral paresis (9.3%), and bilateral paralysis (1.9%). Most patients were <1 year old (46.5%). Paralysis was associated with significantly higher charges than paresis (+\$34,103.33, $p=0.007$), while bilateral VFP had lower charges than unilateral (- \$81,089.19, $p<0.001$). Cardiac comorbidities were associated with higher costs (+\$113,797.38, $p<0.001$) and unilateral VFP. LOS and cost remained significantly associated with VFP subtype after adjustment. Mortality was rare ($N=162$) and not associated with VFP type ($p=0.7986$). The South was associated with unilateral paresis and unspecified paralysis, while bilateral paresis was more common in the Midwest. Conclusions: Differences in cost and resource use across VFP subtypes suggest variable clinical management. The strong association of cardiac comorbidities with both unilateral VFP and higher costs underscores the need for tailored care approaches in this population.

128. Using Digital Colorimetry to Endoscopically Quantify Aspiration in a Rat Model

Stephen Leong, MD; Guzal Shukur, BS; Mahdi Al-Ghezi, BS; Carson S. Miller, BS; Zaroug Jaleel, MD; Neel K. Bhatt, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe a methodology for endoscopic quantification of aspiration using digital colorimetry in a rat model. Objectives: The rat model is frequently used to study oropharyngeal dysphagia and aspiration. Recurrent laryngeal nerve (RLN) injury causes vocal fold paralysis and increased aspiration. However, endoscopic quantification of aspiration is technically challenging. This study presents a novel method for endoscopic quantification of aspiration using digital colorimetry in a rat model. Study Design: 14 Sprague Dawley rats were anesthetized. A tracheal window was created and an 11.5 Fr, 30-degree rigid telescope was advanced to digitally capture aspiration during swallow trials. Methods: For each trial, 0.25ml of methylene blue solution was placed in the oropharynx. The superior laryngeal nerve was stimulated to elicit a swallow reflex. Three swallow trials were performed and repeated after unilateral and bilateral

RLN transection. Still frames from endoscopic videos were obtained from each swallow, and aspiration was digitally quantified through color histogram analysis. In addition, aspiration was visually scored (0-4) by two blinded reviewers. Results: Three trials per condition were obtained for 14 rats. Repeated measures ANOVA demonstrated a significant difference in infraglottic mean blue intensity between the three conditions (mean +/- SD, -2.0+/-5.8 no injury, 3.9+/-8.6 unilateral, 27.9+/-36.0 bilateral, $p<0.01$). Additionally, there was a significant difference in average aspiration scores (0.47+/-0.48 no injury, 0.98+/-0.95 unilateral, 2.8+/-0.95 bilateral, $p<0.01$). There was moderate correlation between quantitative and subjective scores across all groups ($R=0.58$, 95%CI 0.34-0.75). Conclusions: Endoscopic quantification of aspiration through color histogram analysis is feasible. This novel method correlates with subjective scoring. Digital colorimetry analysis provides a useful method to endoscopically measure aspiration in a rat model.

129. Airway Hematomas Following Structural Cardiac Procedures

Emmeline Y. Lin, MD; Allen S. Zhou, MD (Presenter); Justin K. Yang, BS; Pinak B. Shah, MD; Charles B. Nyman, MBCh FASE; Rosh K. Sethi, MD MPH

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the presentation, risk factors, and clinical course of airway hematomas following transesophageal echocardiogram guided structural cardiac interventions and apply an evidence based clinical algorithm for timely recognition and management to reduce morbidity. Objectives: Upper airway hematomas are a rare but life threatening complication of structural cardiac interventions guided by transesophageal echocardiography (TEE). This study aims to characterize the presentation and outcomes of patients who developed airway hematomas and proposes a clinical algorithm to minimize morbidity. Study Design: Retrospective case control study. Methods: A retrospective case control study at a tertiary academic hospital of patients who underwent TEE guided structural cardiac interventions from October 2023 to September 2024 was conducted. Cases of upper airway hematoma were defined as edema and ecchymosis in the oropharynx, larynx, or hypopharynx on exam or imaging. For the control group, all patients who underwent similar procedures without complications in the same time period were included. Differences in demographics, comorbidities, and procedural details between the groups were analyzed. Post-procedural symptoms and subsequent airway management were identified for patients within the case group. Results: 8 cases and 35 control patients were identified. Patients who developed airway hematomas had significantly longer average procedure length (305.4 vs. 223.6 minutes, $p=0.0065$) and intubation duration (298 vs. 170 minutes, $p=0.0003$) but received lower average heparin doses ($p=0.0261$) compared to control patients. Common symptoms included dysphagia, odynophagia, and difficulty tolerating secretions, with average onset 206.5 minutes post-procedure. Stridor and hemoptysis were rare, while dyspnea and hoarseness were absent. Six patients required prolonged or emergent repeat intubation; one underwent tracheostomy. Conclusions: Prolonged procedural and intubation time are associated with increased airway hematoma risk. Patients may present with delayed and/or atypical symptoms that require special attention. Adopting a clinical algorithm is crucial for early recognition and intervention of this complication.

130. The Impact of Smoking History on Severity and Outcomes of Iatrogenic Tracheal Stenosis: A Cohort Study

Bryan Renslo, MD; Dylan Bertoni, MD; William Palmer, MD; Hannah Kenny, MD; Kathleen M. Tibbetts, MD; Richard Goldman, MD

Educational Objective: At the conclusion of this presentation, participants should better understand the impact of smoking history on outcomes of airway stenosis. Objectives: Smoking is a known risk factor for airway stenosis, however its impact on treatment outcomes is unclear. In this study, we investigate the association between smoking history and treatment outcomes in patients with iatrogenic subglottic and tracheal stenosis. Study Design: Retrospective cohort study. Methods: Adults treated for iatrogenic subglottic or tracheal stenosis between 2017-2024 were included. Demographics and treatment information were collected retrospectively. Continuous and categorical variables were compared using Student's T-test and Pearson's chi-square test, and outcomes prediction was completed using univariable and multivariable regression using R statistical software. Results: A total of 82 patients were included, 35 with a history of smoking and 17 with heavy smoking (greater than 20 pack years).

Smokers tended to be male (n=16[45.7%] vs n=10[21.3%], $p<0.001$) with a higher incidence of COPD (n= 12[34.3%] vs n=6[12.8%], $p<0.001$). On univariable regression, heavy smoking was insignificantly associated with increased number of endoscopic procedures ($\hat{\tau}^2=1.5[-0.03, 3.0]$, $p=0.055$) while pack years were insignificantly associated with tracheotomy placement ($B=1.00[1.00, 1.01]$, $p=0.098$). On multivariable stepwise regression, heavy smoking was insignificantly associated with total endoscopic procedures ($\beta=1.3[-0.24, 2.8]$, $p=0.10$), and pack years were significantly associated with tracheotomy placement ($B=1.03[1.00, 1.06]$, $p=0.041$). Conclusions: Smoking history was associated with worse outcomes for patients with iatrogenic subglottic or tracheal stenosis, however only the association of pack years with tracheotomy placement was statistically significant. Findings may be impacted by remoteness of smoking history relative to presentation, and further study is warranted.

131. Complications Following Laryngeal Biopsy via Flexible Versus Direct Laryngoscopy Approaches

Janvi J. Shukla, BA; Kathleen Tibbetts, MD; Kenneth Yan, MD PhD; Rachel Kaye, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the differences in complication profiles for laryngeal biopsy between flexible and direct laryngoscopy approaches to enhance clinical decision-making regarding procedure selection. Objectives: To compare complication rates following laryngeal biopsy under general versus local anesthesia. Study Design: Retrospective database study. Methods: Adults (≥ 18 years) who underwent laryngeal biopsy were identified using the TriNetX U.S. Collaborative Network. Patients were stratified by surgical approach and propensity score matched by age, sex, race, ethnicity, BMI, and comorbidities. Outcomes were assessed from 1 day to 3 months post-procedure. Results: A total of 34,734 patients underwent biopsy via direct laryngoscopy and 2,556 via flexible laryngoscopy. After matching, 2,479 patients remained in each group. Compared to flexible laryngoscopy, direct laryngoscopy was associated with higher rates of dysphagia (OR 1.35; 95% CI 1.20--1.53; $p<0.0001$), infection (OR 1.36; 1.01--1.84; $p=0.042$), bleeding (OR 1.40; 1.05--1.86; $p=0.0209$), stridor (OR 2.47; 1.51--4.02; $p=0.0002$), and emergency tracheostomy/intubation (OR 2.05; 1.71--2.47; $p<0.0001$). Conversely, direct laryngoscopy was associated with lower rates of dysphonia (OR 0.70; 0.61--0.79; $p<0.0001$), need for repeat biopsy via direct laryngoscopy (OR 0.43; 0.34--0.55; $p<0.0001$), and repeat biopsy via flexible laryngoscopy (OR 0.31; 0.18--0.54; $p<0.0001$). No significant difference was found in mortality (OR 0.95; 0.68--1.31; $p=0.74$). Conclusions: Laryngeal biopsy via direct laryngoscopy is associated with higher rates of several complications, while flexible laryngoscopy is linked to increased dysphonia and need for repeat tissue sampling. These findings may inform patient selection and perioperative decision-making.

132. Complications of Tracheal and Subglottic Stenosis Dilations Stratified by Modified Frailty Index

Janvi J. Shukla, BA; Kathleen Tibbetts, MD; Kenneth Yan, MD PhD; Rachel Kaye, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe how the modified frailty index impacts complication rates following dilation for tracheal and subglottic stenosis in order to improve risk stratification and guide clinical decision making. Objectives: To evaluate complication rates following tracheal and subglottic stenosis dilation in relation to patient frailty, as measured by the modified frailty index (mFI-5), a validated tool based on five comorbidities: diabetes, functional dependence, COPD, congestive heart failure, and hypertension. Study Design: Retrospective database study. Methods: Patients undergoing tracheal or subglottic dilation were identified from the TriNetX United States Collaborative Network and stratified by mFI-5 score. Cohorts were propensity score matched by age, sex, race, ethnicity, BMI, and comorbidities. Postoperative complications were assessed from 1 day to 3 months. Odds ratios (ORs) were normalized to mFI-5 = 0. Results: Among 17,063 patients, frailty was associated with higher complication rates. Relative odds ratios for dysphagia were 1.42, 1.69, and 1.60 and 1.4 for mFI-5 = 1-4 respectively ($p<0.001$, $p<0.001$, $p=0.0017$ and $p=0.1751$). Relative odds ratios for dyspnea were 1.13, 1.59, 1.83 and 2.16 for mFI-5 = 1-4, respectively ($p=0.0603$ for mFI-5=1, $p<0.001$ for others). Relative odds ratios for stridor were 1.10, 1.72, 1.20 and 2.00 for mFI-5=1-4 respectively ($p=0.337$, $p=0.0002$, $p=0.341$ and $p=0.0172$). Infection rates increased with frailty: ORs were 1.91 ($p=0.0013$) for mFI-5 = 1, 2.55 ($p=0.0003$) for mFI-5 = 2, 2.79

($p=0.0027$) for mFI-5 = 3, and 2.17 ($p=0.0436$) for mFI-5 = 4. Repeat dilation was more likely across groups: OR 1.38 ($p<0.001$) for mFI-5 = 1, 1.92 ($p<0.001$) for mFI-5 = 2, 1.78 ($p<0.001$) for mFI-5 = 3, and 1.74 ($p=0.002$) for mFI-5 = 4. No significant mortality differences were observed. Conclusions: Higher mFI-5 scores were associated with increased risks of complications following dilation. Frailty assessment may improve patient selection and counseling.

133. Postoperative Complications after Open Surgical Tracheostomy in Adults with Type 2 Diabetes Using SGLT2 Inhibitors: A Retrospective Cohort Study

Sohil Singh, BS; Sagar Matharu, BS; Ankit Choudhury, BA; Ryan Puccia, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe postoperative complications observed among adults with type 2 diabetes mellitus undergoing open surgical tracheostomy, recognize differences associated with preoperative SGLT2 inhibitor use, and discuss the potential implications for perioperative awareness and future research. Objectives: This study aimed to evaluate whether preoperative use of sodium-glucose cotransporter 2 inhibitors (SGLT2i) is associated with increased postoperative complications in adults with type 2 diabetes mellitus (T2DM) undergoing open surgical tracheostomy (OST). Study Design: Retrospective cohort study using federated electronic health records. Methods: Using the TriNetX Research Network, adults (18 years or older) with T2DM who underwent first-time OST between October 2013 and October 2023 were identified. Patients with SGLT2i use within 180 days preoperatively were compared with nonusers using 1:1 propensity score matching on demographics, comorbidities, medications, and laboratory values. Postoperative outcomes were assessed at 90 and 180 days, and included medical, surgical, and encounter-related complications. Results: Of 36840 patients eligible, 1329 had preoperative SGLT2i use. After matching, 1327 patients remained in each cohort. At 90 days, SGLT2i use was associated with hypoglycemia (OR 1.950, 95% CI 1.183-3.213, $p=0.008$), heart failure exacerbation (OR 1.703, 95% CI 1.355-2.140, $p<0.001$), and surgical site infection (OR 1.551, 95% CI 1.060-2.268, $p=0.023$). At 180 days, SGLT2i use was associated with hypoglycemia (OR 2.014, 95% CI 1.298-3.125, $p=0.001$), heart failure exacerbation (OR 1.606, 95% CI 1.296-1.990, $p<0.001$), dizziness/vertigo (OR 1.671, 95% CI 1.062-2.628, $p=0.028$), tracheostomy stoma malfunction (OR 1.478, 95% CI 1.026-2.129, $p=0.035$), and surgical site infection (OR 1.414, 95% CI 1.011-1.978, $p=0.042$). Conclusions: Preoperative SGLT2 inhibitor use in adults with T2DM undergoing OST was associated with higher observed rates of cardiometabolic and wound-related complications. These hypothesis-generating findings support the need for prospective evaluation of perioperative risk.

134. Speaking Related Mental and Physical Effort in Transgender Individuals

Kayen Ukyiah Tang, BA; Tanya K. Meyer, MD; Joseph Chang, MD

Educational Objective: At the conclusion of this presentation, participants will be able to recognize different components of vocal effort and how they may vary across transgender individuals and voice conditions. In addition, attendees will gain insight into the application of the NASA Task Load Index (NASA-TLX) as a novel tool in voice related clinical research. Objectives: Prior literature has examined vocal characteristics that transgender individuals may modify to align voice and gender identity, including pitch, resonance, and intonation. Increased vocal effort has been hypothesized but not confirmed in the literature. This study aims to evaluate differences in vocal effort among transgender individuals compared to cisgender individuals and those with voice disorders. Study Design: Cross sectional study. Methods: Four groups of English speaking adults were recruited, including an experimental and negative control group, transgender and cisgender individuals without voice conditions, and positive control groups, adductor laryngeal dystonia (ADLD) and unilateral vocal fold paralysis (UVFP) patients. Participants completed a two-minute speaking task followed by the NASA Task Load Index (NASA-TLX) and Voice Handicap Index 10 (VHI-10). The NASA-TLX is widely used to assess task-related workload and has recently been explored as a novel tool to evaluate vocal effort components, including mental and physical demand. Results: Participants included 10 transgender, 8 cisgender, 7 ADLD, and 7 UVFP individuals. NASA-TLX mental and physical demand subscales were elevated in the transgender group compared to the cisgender group (ANOVA p less than 0.05, Tukey p less than 0.05).

In this preliminary sample, positive control groups had elevated mental and physical demand compared to cisgender individuals, though not statistically significant (p greater than 0.05). VHI-10 was elevated in the transgender, ADLD, and UVFP groups compared to cisgender controls (ANOVA p less than 0.001, Tukey p less than 0.001). Conclusions: This pilot study suggests that transgender individuals experience greater vocal effort, including both physical and mental components, compared to cisgender individuals. These findings may provide another perspective to understand the effects of gender affirming voice care.

135. Fibroblast Activity After Airway Epithelial Injury in Immunocompetent and Immunodeficient Mice

Rheanna Jolene Velasquez, BS; Jazmin Calyeca, PhD; Kangrui Li, BS; Tendy Chiang, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to demonstrate an understanding of the role of fibroblasts and immune cells in wound repair after airway injury. Objectives: Cthrc1 has recently been identified as a marker for a distinct subset of activated fibroblasts that contribute to fibrotic scar formation and collagen deposition during airway remodeling in response to injury. In this study, we investigate the role of fibroblast immune cell crosstalk in airway remodeling after injury, comparing fibroblast activation, proliferation, and collagen production in immunocompetent and immunodeficient mouse models. Study Design: Mouse, microsurgical model of epithelial injury. Methods: Trachea from immunocompromised or NOD SCID ($n=3$) and WT or C57BL/6 ($n=3$) mice were collected and processed for staining 1 month post-injury. Immunofluorescent staining was performed to visualize activated (CTHRC1+, vimentin+) and proliferating (Ki67+, vimentin+) fibroblasts. Masson's trichrome was used to stain for collagen. Fibroblast and collagen quantification was performed via ImageJ in the tracheal submucosa from the anastomosis along the length of 5 cartilage rings, excluding cells in cartilage rings and epithelium. Results: Both groups presented with similar airway epithelial repair at 1 month post-surgery. However, histological analysis showed significantly decreased fibroblast density and proliferation in the submucosa for immunodeficient compared to WT mice ($p<0.05$), with similar trends favoring decreased fibroblast activation and collagen production. Conclusions: Airway remodeling in an immunodeficient context is characterized by decreased recruitment and proliferation of fibroblasts after injury. Further studies may explore how repeated airway epithelial injury impacts fibroblast immune cell dynamics and investigate precise interactions of specific immunocytes and immunomodulatory cytokines with CTHRC1+ fibroblasts, elucidating their role in fibroblast activation and aiding the development of antifibrotic therapies.

136. Evaluating the Impact of Adjuvant Azithromycin in the Management of Idiopathic Subglottic Stenosis

Sanjena Venkatesh, BA; Barry Kriegsmann, MD PhD; Kevin Leahy, MD PhD; Natasha Mirza, MD

Educational Objective: At the conclusion of this presentation, participants should be able to describe the role of adjuvant azithromycin in the management of idiopathic subglottic stenosis, specifically regarding its impact on disease recurrence rates and time to recurrence. Objectives: To evaluate whether adjuvant azithromycin improves outcomes in the management of idiopathic subglottic stenosis (iSGS). Study Design: Retrospective cohort study. Methods: We included all patients who underwent endoscopic dilation for iSGS at our institution between January 2021 and December 2024 ($n=92$). Patients were stratified into two groups: 31 who received adjuvant azithromycin (250mg every other day) in addition to standard medical therapy (proton pump inhibitor and inhaled corticosteroid) versus 61 who received standard therapy alone. The primary outcome was disease recurrence, defined as the need for repeat dilation. Recurrence rates were assessed at various timepoints following surgery: 6, 12, 24, and 36 months. Average time to first recurrence was also compared. Statistical analysis included 2 proportion z-tests and t-tests, with significance set at $p<0.05$. Results: Overall recurrence was lower in the azithromycin group (35%) relative to the control group (56%), though this difference was not statistically significant ($p=0.07$). Recurrence rates at 6, 12, 24, and 36 months did not differ significantly between groups (p -values: 0.91, 0.44, 0.39, 0.73, respectively). Mean time to first recurrence was longer in the azithromycin group (21.4 vs. 17.2 months), though this difference also did not reach statistical significance ($p=0.12$). Conclusions: Administration of low dose azithromycin to patients with

iSGS tended to lead to a lower recurrence rate and delayed time to recurrence, although these results were not statistically significant. Future prospective studies with larger cohorts are warranted to increase power and assess for potential clinical benefit.

137. Association of Surgical Specialty with Postoperative Outcomes Following Tracheostomy

Afash Haleem, BS; Akshay Warriar, BA; Ariana Shaari, MD; Christian Bowers, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to identify comparative differences in tracheostomy outcomes between general surgery and otolaryngology. Objectives: To investigate whether surgical specialty is independently associated with postoperative outcomes following tracheostomy procedures. Study Design: Retrospective Cohort Study Methods: Using CPT codes corresponding to tracheostomy (31600, 31601, 31603, 31605), NSQIP data from 2005 to 2020 was queried for adult patients operated on by general surgeons or otolaryngologists. Univariate and multivariable logistic regression was used to evaluate associations between surgical specialty and postoperative outcomes, adjusting for relevant patient- and procedure-level covariates including age ≥ 65 , sex, race, ASA classification, significant comorbidities, and case characteristics (elective status, operative time). Results: A total of 4,405 patients undergoing tracheostomy met inclusion criteria, with 86.0% (n = 3,789) operated on by otolaryngologists and 14.0% (n = 616) by general surgeons. ENT patients were more likely to undergo elective procedures (87.1% vs 26.1%, $P < .001$) and present with lower ASA classifications ($P < .001$), while general surgery cases were more frequently emergency operations (22.6% vs 3.0%, $P < .001$). After adjusting for baseline characteristics, patients treated by general surgeons had significantly increased odds of several adverse outcomes compared to those treated by otolaryngologists: extended length of stay (OR 3.83, 95% CI 3.06-4.80, $p < 0.001$), Clavien-Dindo IV complications (OR 3.75, 95% CI 2.92-4.81, $p < 0.001$), mortality (OR 3.88, 95% CI 2.50-6.01, $p < 0.001$), and non-home discharge (OR 4.56, 95% CI 3.44-6.03, $p < 0.001$). However, general surgery patients had lower odds of 30-day readmission (OR 0.64, 95% CI 0.41-1.00, $P = .048$). Conclusions: Surgical specialty appears to be independently associated with short-term postoperative outcomes following tracheostomy, with patients treated by general surgeons demonstrating higher odds of complications and resource utilization metrics such as non-home discharge and prolonged hospitalization. These findings may reflect underlying differences in patient selection, urgency of intervention, or institutional practice patterns. Further prospective investigation is warranted to elucidate the drivers of these outcome differences and optimize multidisciplinary care pathways.

138. Predictors of Response to Laryngeal Botox Injection for Neurogenic Cough: A Retrospective Review

Troy Weinstein, BSHS; Nader Wehbi, BS; Kira Wang, BS; Austin Lever, MD; Helena Yip, MD

Educational Objective: At the conclusion of this presentation, participants should be able to have a better understanding of laryngeal Botox injection for chronic cough. Objectives: To study the impact of dosing and sites of administration on response to laryngeal Botox injection in patients with neurogenic cough. Study Design: Retrospective cohort study of 15 patients. Methods: We reviewed medical records of adult patients with chronic cough seen by the senior author between 2018 and 2024. The primary outcome was patient reported improvement in cough symptoms, on a 6 point scale (0=worse, 1=none, 2=mild, 3=moderate, 4=significant, 5=complete). Results: 15 patients were included. Mean age (SD) was 64.53 (15.04), and 93.3% were female. Mean followup time (SD) was 1.89 years (1.34). A total of 28 series of injections were performed, with an average number of series of injections per patient of 1.87. The average improvement in cough symptoms was 2.57 (mild to moderate), with an average duration of improvement (SD) of 82.22 days (111.12). There was no significant difference in cough improvement or duration of relief between unilateral and bilateral true vocal cord (TVC) injection (p value = .694 and .978, respectively). 93.3% (14/15) had worsening dysphonia after the first injection, and 60% (9/15) had worsening dysphagia. Dysphagia was not significantly associated with unilateral or bilateral TVC injection ($p = .539$). Among patients who had 2 or more injections, 40% (4/10) had progressive improvement in cough symptoms after repeat dosing. Conclusions: Injection of bilateral TVC vs unilateral TVC had no significant impact on reported cough improvement or degree of dysphagia

or dysphonia.

139. Preliminary Evaluation of a Machine Learning Model for Differentiating Common Voice Disorders

Troy Weinstein, BSHS; Phil Tseng, BS; Philip C. Doyle, PhD; Julio Cardenas-Rodriguez, PhD; Helena Yip, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to gain an understanding of how a standard machine learning model could aid in the diagnosis of various forms of dysphonia without obvious laryngoscopic findings. Objectives: To evaluate the performance of a machine learning (ML) model trained on a small sample that was used to differentiate common laryngeal voice diseases such as muscle tension dysphonia with lesions (MTD), MTD without lesions (MTDneg) and adductor laryngeal dystonia (AdLD). Study Design: Retrospective proof of concept analysis of de-identified voice samples. Methods: Thirty de-identified voice samples that had been expertly classified by two blinded laryngology experts served as stimuli for this project. These voice samples were combined into a single data set, and zero padded to account for different duration of each recording. Each sample was then decomposed into its basic components using singular value decomposition, which resulted in a dimensionality reduction from 384,609 data points for each patient to 15 data points for each patient. Finally, a standard logistic regression was used to classify each sample. Results: 30 patients were included. 17 (56.7%) were male. Our simple strategy achieved the following sensitivity, specificity, and positive prediction value for each group: AdLD (0.56, 1.0, 1.0), MTD (0.90, 0.95, 0.90), MTDneg (0.90, 0.74, 0.64). Conclusions: This proof of concept model demonstrates that a simple logistic regression model can be used as a predictor for voice disorders. The sample size for this proof of concept is limited, which prevents us from performing cross-validation. Work is in progress to collect more data and determine the out of train performance of this promising method.

140. Long-Term Voice Outcomes After Transoral Resection of Early Glottis Carcinoma

Peak Woo, MD; Anahita Nourmahnad, MD (Presenter); Benjamin Laitman, MD; Lucy Head, BA

Educational Objective: At the conclusion of this presentation, the participants should be able to 1) understand the relationship between patient perceptions of voice disability versus objective analysis of voice versus expert raters of voice in patients undergoing transoral surgery for glottis carcinoma; and 2) know the correlation of voice outcomes and the extent of resection and the stage of cancer. Objectives: Survival outcomes after transoral laser microsurgery (TLM) for glottic carcinoma have been well studied; however, the final voice qualities after TLM are not clear. This study looks at long-term voice outcomes after TLM and correlates patient perception vs. expert rating vs. objective acoustic analysis vs. ELR surgery type. Study Design: A retrospective study of long-term voice outcomes (GRBAS, VHI-10, CSID scores) in patients with transoral surgery for early glottis carcinoma. Methods: Patients who had TLM were studied. We collected the Voice Handicap Index (VHI-10), acoustic analysis (Cepstral Spectral Peak Prominence, CSPP score), and GRBAS rating score (from two blinded judges). This data is correlated to the stage of cancer and surgery type (ELR, European Laryngological Society). Results: Between 2000 and 2021, one hundred and two patients (86 males, 16 females; median age 74) were studied. There were 51 type I and 27 type Va resections. The rest underwent microflap surgery, types II, III, IV, Vb, and VI surgery). The median followup time is 5.2 years. The median VHI-10 score is 7.5 (normal <10). The median CSID score is 27.5 (mild=20-40), The Average GRBAS score is G1.7,R1,B1,A0,S1 (mild-moderate). There is a good correlation ($r=.76$) between the CSID score and grade, while the VHI correlation to GRBAS and CSID is moderate ($r=.48$ and $r=.50$). There is a statistical difference in type I ELR resection outcomes vs. all other types in the VHI, CSID, and GRBAS scores. Conclusions: Patients often rate their VHI as normal, while objective and perceptual raters' rate voices after TLM show mild to moderate dysphonia. This low VHI score may be due to the effect of cancer survivorship. Understanding the patient experience after TLM surgery and knowing the extent of surgery on voice outcomes can help clinicians better counsel patients undergoing TLM.

OTOLOGY/NEUROTOLOGY

141. Dizziness, Vertigo, and Associated Healthcare Utilization in the U.S. Adult Population

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the prevalence and symptomology of dizziness -- specifically vertigo -- among a nationally representative sample of U.S. adults, including falls and associated healthcare utilization, and to apply knowledge of dizziness symptomology to inform fall prevention strategies in clinical practice. **Objectives:** To assess the prevalence and characteristics of dizziness symptoms, with a focus on vertigo, among U.S. adults, and evaluate falls, injuries, and healthcare utilization. **Study Design:** Cross-sectional, population based study. **Methods:** Study cohort included adults aged 20-69 years (n=6,034) from the National Health and Nutrition Examination Survey 2021-2023 with completed data on symptoms of vertigo, lightheadedness, unsteadiness, fall history, and healthcare utilization. Survey weights were applied to generate nationally representative estimates. Multivariable regression analyses were used to identify factors associated with dizziness, falls, injuries, and healthcare utilization. **Results:** The weighted prevalence of dizziness in the past year was 35.3% (95% CI: 32.7-35.7%), while the prevalence of vertigo was 18.23% (95% CI: 16.53-20.08%), representing 92 million and 48 million U.S. adults, respectively. Among those with vertigo, 2.9% (95% CI: 2.5-3.3%) reported experiencing vertigo only, while 15.4% (95% CI: 14.5-16.3%) reported vertigo and other dizziness symptoms. Of those reporting vertigo, 71.1% (95% CI: 67.5-74.3%) fell in the past year and 45.5% (95% CI: 40.6-50.4%) sustained fall related injuries. While 52.7% (95% CI: 47.6-57.7%) of adults with vertigo saw a healthcare professional for balance problems, only 48.0% (95% CI: 42.7-53.3%) reported trying treatment. No significant differences in fall rates, injury, or healthcare utilization were observed across different dizziness symptom subtypes (vertigo, lightheadedness, and unsteadiness). **Conclusions:** Over one-third of U.S. adults report dizziness, and nearly one-fifth experience vertigo. Despite high rates of falls and injuries in this population, only half seek medical care. These findings highlight a gap in dizziness related healthcare utilization, underscoring the need for improved screening and fall prevention strategies in clinical settings.

142. The Screening Utility of Ambient Pressure Tympanometry for Detection of Radiologically Diagnosed Sources of Subjective Pulsatile Tinnitus

Christian Jade Bernard, MD; Mallory Raymond, MD; Cyrus Khorassani, N/A; Monica Amarante, AuD; Greta Stamper, PhD AuD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand that contemporary evaluation of pulsatile tinnitus (PT) lacks a reliable screening tool and often requires multiple nondiagnostic imaging tests. Therefore, we sought to determine the sensitivity and specificity of ambient pressure tympanometry (APT) for identifying a radiological source of subjective PT. **Objectives:** To determine the screening utility of ambient pressure tympanometry (APT) to identify a radiologic source and surgeon defined diagnosis for subjective PT. **Study Design:** Retrospective Review **Methods:** A retrospective review was conducted on 111 patients (152 ears) who underwent APT for PT between 2022 - 2025 at a tertiary care clinic. Data collection included demographics, surgeon diagnoses, radiologic tests performed and interpretations. A blinded audiologist classified APT tracings as a positive pulse-synchronous pattern (rhythmic waves with 40 to 100 peaks per minute) or negative. Sensitivity and specificity were calculated using any radiologic diagnosis and surgeon defined diagnosis as gold standards. **Results:** Of 138 (90.8%) ears that underwent radiologic testing, 76 (55.1%) had a pulse-synchronous APT pattern, and 58 (42.0%) had a positive radiologic finding. APT sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) for a radiologic finding were 58.6%, 47.5%, 44.7% and 61.3%, respectively. A surgeon diagnosis for PT was provided for 78 (51.3%) ears; APT sensitivity, specificity, PPV and NPV were 52.6%, 47.3%, 51.3% and 48.6%, respectively. **Conclusions:** With a low sensitivity and specificity, APT may not be a reliable screening tool for the detection of a radiologic correlate of subjective PT. Clinicians should continue to pursue radiologic evaluation of subjective PT despite a negative APT and counsel patients on the limits of imaging and the potential need for multiple modalities for the detection of sources of subjective PT.

- 143. Adult Hearing Screening for Underserved U.S. Populations in the Primary Care Setting: A Scoping Review**
Kashika Bharol, BA; Leyda S. Marrero Morales, BSEng; Komal Aggarwal, MSc; Kyle Polen, BS; Armita Norouzi, BA; Megan Durr, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the evidence on adult hearing screening uptake, outcomes, and follow through among underserved populations in the United States. Objectives: To evaluate existing literature on hearing screening outcomes and follow through among underserved adult populations in U.S. primary care settings. Study Design: Scoping review. Methods: Following the PRISMA-ScR framework, a comprehensive literature search was conducted across PubMed, Ovid Medline, Scopus, and CINAHL for studies published from January 2000 to January 2025. Inclusion criteria targeted studies assessing hearing screening strategies for underserved adults in U.S. primary care settings. Studies were categorized by screening modality and assessed for efficacy and reported barriers/facilitators. Results: Of 1,894 articles screened, 12 met inclusion criteria. Screening modalities included questionnaires (50%), digits in noise testing (17%), simple bedside tests (e.g., finger rub and whisper tests) (17%), and otoacoustic emissions (8%). Half of the studies compared these to results of pure tone audiometry. Primary care provider (PCP) engagement, including offering encouragement and facilitating referrals, was noted to support patient follow through on formal hearing evaluations, particularly when paired with patient education. Questionnaires like Hearing Handicap Inventory for the Elderly (HHIE) and Screening for Otologic Functional Impairments (SOFI) were found reliable and correlated well with audiometric outcomes. Patient reported barriers included limited awareness of hearing loss, cost of hearing aids, and lack of PCP initiated screening; one study noted 85% of patients reporting never being asked about hearing by their PCP. Conclusions: Provider engagement and patient education emerged as key facilitators in efforts to improve hearing loss detection and follow through on evaluation. Broader implementation and routinization of validated questionnaires and low cost tests, coupled with proactive provider involvement, may enhance screening rates and reduce disparities in hearing health.

- 144. Outcomes of Tinnitus Interventions: An Umbrella Review of Systematic Reviews with Meta-Analysis**
Kaiwen Chen, BS; Neil P. Monaghan, MD; Shaun A. Nguyen, MD; Warren B. Chun, MD; Robert F. Labadie, MD PhD; Ted A. Meyer, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to evaluate and compare the effectiveness of current tinnitus interventions Objectives: To evaluate the outcomes of tinnitus interventions through a synthesis of systematic reviews with meta-analyses Study Design: Umbrella Review. Methods: Following PRISMA guidelines, we systematically searched CINAHL, COCHRANE Library, PubMed, and Scopus through April 2025. Systematic reviews with meta-analyses of primary tinnitus interventions were included. Outcomes focused on validated measures of tinnitus severity, distress, loudness, and quality of life. Study quality was assessed using AMSTAR-2. Results: A total of 53 systematic reviews were included, covering seven intervention domains. Cognitive behavioral therapy (CBT), hearing aids, tinnitus retraining therapy (TRT), and sound/music therapy consistently improved tinnitus-related outcomes (e.g., THI reductions up to -14.5, $p < 0.001$). Cochlear implantation yielded the largest effects (e.g., THI -29.97) but is reserved for patients with moderate-to-profound sensorineural hearing loss who are not adequately helped by hearing aids. Neuromodulation and acupuncture showed modest or inconsistent benefits with high heterogeneity. Conclusions: This umbrella review provides the current and comprehensive analysis of tinnitus treatments. CBT, hearing aids, TRT, and sound/music therapy show consistent benefit. Cochlear implantation offers the greatest effect in patients with moderate to profound hearing loss unresponsive to hearing aids. Other therapies show mixed results. These findings offer a much needed evidence framework to guide treatment decisions and future research.

- 145. Safety and Efficacy of Microvascular Decompression Compared with Other Surgical Interventions for Trigeminal Neuralgia: A Systematic Review and Meta Analysis**
Kaiwen Chen, BS; David Kayekjian, BS (Presenter); Warren B. Chun, MD; Shaun A. Nguyen, MD; Sunil J. Patel,

Educational Objective: At the conclusion of this presentation, the participants should be able to synthesize and compare the long-term efficacy, safety, and recurrence rates of MVD versus other surgical interventions for primary trigeminal neuralgia. **Objectives:** To systematically evaluate and compare the efficacy, safety, and outcomes of microvascular decompression (MVD) with other common surgical interventions for primary trigeminal neuralgia (PTN), including percutaneous balloon compression (PBC), partial sensory rhizotomy (PSR), radiofrequency rhizotomy (RFR) and stereotactic radiosurgery (SRS). **Study Design:** Systematic review and meta-analysis. **Methods:** A systematic search of CINAHL, Cochrane Library, PubMed, and SCOPUS was performed from inception through June 2025, in accordance with PRISMA guidelines. Studies evaluating MVD versus other interventions in surgically naive PTN patients were included. Extracted outcomes included short and long-term pain relief, recurrence, reoperation rates, and complications. **Results:** A total of 26 studies (6 prospective, 20 retrospective) encompassing 3,780 patients were included. MVD demonstrated significantly higher long-term efficacy than PSR (84.4% vs. 66.0%, $p<0.0001$), RFR (72.1% vs. 54.7%, $p=0.0001$), and SRS (79.8% vs. 55.5%, $p<0.0001$). Compared to PBC, MVD had similar long-term efficacy (83.9% vs. 79.7%, $p=0.2214$) but lower recurrence (11.1% vs. 18.3%, $p=0.0128$). Recurrence was also lower with MVD versus RFR (20.7% vs. 38.3%, $p=0.0037$) and SRS (9.5% vs. 32.0%, $p<0.0001$). Repeat surgery was more frequent with MVD than PBC (16.4% vs. 6.9%), but comparable or lower than other procedures. MVD had the lowest complication rates overall, with facial numbness in only 8.7% of cases compared to 25.6-36.5% for PBC, RFR, and SRS. **Conclusions:** In surgically naive PTN patients, MVD provides superior long-term pain control and lower recurrence with fewer sensory complications. It remains the most durable and neurologically sparing option when feasible. Future prospective studies with standardized outcome measures are needed to further guide patient centered surgical decision making.

146. Auditory Complications Following COVID-19 Infection and Vaccination: A TriNetX Based Retrospective Cohort Study

Warren B Chun, MD; Kaiwen Chen, BS; Shaun A. Nguyen, MD; Robert F. Labadie, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to summarize the incidence of new onset tinnitus and hearing loss following COVID-19 infection and vaccination, interpret the comparative risks between exposure groups, and discuss the implications for patient counseling and public health policy. **Objectives:** To assess the incidence of new onset tinnitus and hearing loss following COVID-19 infection or vaccination using a large, real world electronic health record database. **Study Design:** Retrospective cohort study. **Methods:** A retrospective cohort study utilizing the TriNetX Global Collaborative Network (180+ million patient records). Adults without prior tinnitus or hearing loss were grouped by exposure: COVID-19 infection, mRNA vaccination, viral vector vaccination, and matched unexposed controls. Incidence of tinnitus (ICD-10-CM: H93.1) and hearing loss (ICD-10-CM: H90) within six months post index was assessed. Propensity score matching controlled for confounding and odds ratios (ORs) were calculated. **Results:** mRNA vaccination was associated with increased odds of tinnitus (OR 1.220; 95% CI: 1.189-1.252) and hearing loss (OR 1.214; 95% CI: 1.189-1.240), with small but significant absolute risk differences (0.143% and 0.215%, respectively; $p<0.0001$). Viral vector vaccination was also linked to increased tinnitus risk (OR 1.269; 95% CI: 1.114-1.447) but not hearing loss. In contrast, COVID-19 infection was not associated with increased tinnitus (OR 1.022; 95% CI: 0.997-1.048) and was linked to a modestly reduced risk of hearing loss (OR 0.930; 95% CI: 0.911-0.950) versus unexposed controls. Compared directly, COVID-19 infection conferred lower odds of tinnitus and higher odds of hearing loss than mRNA vaccination ([OR 0.856; 95% CI: 0.833-0.879] and [OR 1.313; 95% CI: 1.285-1.343], respectively). **Conclusions:** COVID-19 infection was not linked with increased tinnitus or hearing loss. Both mRNA and viral vector vaccines showed small but significant increases in new onset tinnitus, with mRNA vaccines also associated with hearing loss. Despite low absolute risks, these findings support ongoing surveillance and research to guide counseling, vaccine policy, and promote understanding of potential otologic effects.

147. Postoperative Instructions in the Digital Age: A Prospective Analysis of Video Instructions in Otology Patients

Sloane M. Clay, MD; Emma Cole, MD; Elena Plakotaris, BS; Zhide Fang, PhD; Leslie Son, PhD; Rahul Mehta, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the benefits and limitations of multimodal (written and video based) postoperative patient education. Objectives: Video postoperative instructions effectively supplement written and verbal instructions by improving comprehension and information retention. Ours is the first prospective study examining implementing the impact of step by step postoperative video instructions for otology patients. Our study examines whether patients experience improved information recall, post operative satisfaction, and reduced number of clinic calls when provided written and video instructions (combination) versus written instructions alone. Study Design: A single site, prospective study was conducted starting November 2024 to May 2025. English speaking adult and pediatric patients undergoing tympanoplasty (n=16) or mastoidectomy (n=6) were recruited and consented at the preoperative appointment. Subjects were randomly assigned to written or combination instruction groups. Methods: Upon followup, subjects completed a 10 question knowledge assessment and Likert scale questions assessing satisfaction with the materials. Phone calls made to the clinic by study participants during the postoperative period were documented. Results: Tympanoplasty subjects receiving combination instructions performed better on knowledge assessment than written only subjects [75% (+/-15%) versus 40% (+/-14%)]. 3 questions demonstrated statistically significant performance differences (p=0.0032, 0.0192, 0.0885). Adult subjects answered correctly "Which of these necessitates a call to the office?" more frequently than pediatric caregivers (p=0.033). No difference in satisfaction appeared between instruction or age groups; however, 5/11 combination group subjects wrote unprompted positive comments on assessments. There was no difference in number of calls to the clinic based on instruction type. 4/6 calls came from pediatric caregivers. Conclusions: Our study demonstrates the benefits of supplementing written postoperative instructions with video instructions on information retention and patient satisfaction and revealed differential findings between adult patients and pediatric caregivers. Future studies will include expanding the study population to non-English speaking participants and further investigation regarding modalities adaptable for those with limited access or experience with technology.

148. Efficacy Outcomes of White Noise for Chronic Tinnitus Management: A Systematic Review and Meta-Analysis

Srivatsa Surya Vasudevan, MD MS; Camille Coreil, BS; Leon Lahaye, BS; Gauri Mankekar, MD FACS; Cherie-Ann O. Nathan, MD FACS

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the effectiveness of white noise therapy in managing chronic tinnitus symptoms, compare its outcomes to those of other sound-based therapies including narrowband, notched, speech, high-tone, customized, and natural sound interventions, and interpret changes in standardized outcome measures such as the Tinnitus Handicap Inventory (THI), Tinnitus Functional Index (TFI), Visual Analog Scale (VAS), Loudness Numeric Rating Scale (NRS), and Korean Tinnitus Primary Function Questionnaire (K-TPFQ) at both 3-month and 6-month follow-up intervals. Objectives: To compare the effectiveness of white noise therapy with other sound therapies for the treatment of chronic tinnitus. Study Design: Systematic review and meta-analysis. Methods: A systematic search of PubMed, ScienceDirect, Web of Science, and Embase was conducted for studies published from 2000 through June 2025 that evaluated white noise therapy interventions in chronic tinnitus patients. Other sound therapy comparators, if reported within the same cohort, were included, comprising mixed narrowband to broadband noise, notched noise, speech noise, high-tone noise, placebo, customized sound therapy, and natural sound therapy. The primary outcomes were changes in THI, TFI, VAS, Loudness (NRS), and K-TPFQ scores at 3 and 6 months. Pooled mean differences and 95 percent confidence intervals were calculated using a random-effects model. Results: From a total of 1,371 articles, 24 studies were included, comprising 1,180 chronic tinnitus patients, with a male predominance (61.2%). White noise and

broadband noise therapy resulted in significant improvements in THI at 3 months (mean difference [MD]: 20.53, 95% CI: 9.88-31.19, $p=0.0002$) and at 6 months (mean difference: 15.78, 95% CI: 6.83-24.73, $p=0.001$), as well as significant reductions in TFI (MD: 6.92, 95% CI: 1.51-12.32, $p=0.01$), loudness (NRS) (MD: 2.79, 95% CI: 0.59-5.00, $p=0.01$), VAS (MD: 4.64, 95% CI: 1.36-7.93, $p=0.01$), and K-TPFQ (MD: 16.07, 95% CI: 11.83-20.31, $p<0.0001$) at 3 months. For white noise therapy specifically, THI (MD: 23.15, 95% CI: 13.90-32.40, $p<0.0001$) and VAS (MD: 2.37, 95% CI: 0.68-4.06, $p=0.01$) improved significantly at 3 months. Other sound therapies comprising narrowband therapy, mixed narrowband-broadband, and natural sound interventions, resulted in significant improvements, with THI reductions at 3 months (MD: 18.78, 95% CI: 9.43-28.13, $p=0.0001$) and 6 months (MD: 12.34, 95% CI: 3.02-21.65, $p=0.01$); TFI reductions at 3 months (MD: 6.64, 95% CI: 0.76-12.52, $p=0.03$) and 6 months (MD: 8.35, 95% CI: 3.26-13.43, $p=0.001$); and VAS reductions at 3 months (MD: 2.46, 95% CI: 1.39-3.54, $p<0.0001$) and 6 months (MD: 1.25, 95% CI: 0.64-1.86, $p=0.0001$), with effect sizes generally comparable or slightly lower than those for white noise. Conclusions: Both white noise and other sound therapies provide significant benefit for chronic tinnitus, with white noise therapy showing similar or slightly greater improvements in key outcome measures.

149. Hearing Loss Is Associated with Anxiety in the All of Us Research Program

Ramzi Khalid Elased, AB; Hannah N. W. Weinstein, BA; Justin S. Golub, MD MS

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the association between hearing loss and anxiety. Objectives: To investigate the association between hearing loss and anxiety in a large national cohort. Study Design: Cross-sectional epidemiologic study. Methods: 363,297 participants were analyzed from the All of Us Research Program. The exposures were types of hearing loss defined by ICD-10 code: bilateral sensorineural hearing loss (SNHL) (H90.3), bilateral conductive hearing loss (CHL) (H90.0), unilateral SNHL (H90.4, H90.41, H90.42), and unilateral CHL (H90.1, H90.11, H90.12). The outcome was diagnosis of generalized anxiety disorder (GAD), defined by ICD-10 code (F41.1). Odds of GAD were calculated using univariable and multivariable regression adjusting for potential confounders (age, sex, race, ethnicity, education, smoking history, hypertension, and type 2 diabetes) based on the type of hearing loss. Results: The mean age was 55 years (SD = 17), and 61.8% were female. 24,612 participants had bilateral SNHL, 2,937 had unilateral SNHL, 961 had bilateral CHL, and 1,357 had unilateral CHL. After adjusting for potential confounders, the odds of GAD were 2.21 higher in bilateral SNHL (95% CI 2.12-2.31; $p < 0.001$), 1.93 times higher in unilateral SNHL (95% CI 1.74-2.14; $p < 0.001$), 2.91 times higher in bilateral CHL (95% CI 2.46-3.42; $p < 0.001$), and 2.43 times higher in unilateral CHL (95% CI 2.11-2.80; $p < 0.001$). Conclusions: In the All of Us Research Program, bilateral and unilateral SNHL and CHL were significantly associated with increased odds of GAD. Those with bilateral hearing loss had the highest odds. This study contributes to the growing link between psychological health and hearing loss.

150. Characterizing the Microtia and Atresia Patient Population at a Large Metropolitan Academic Center

Sriprachodaya Gaddam, BS; Corinne Stonebraker, BA; Maura Cosetti, MD; Mingyang Gray, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the importance of understanding diversity of the microtia and atresia population when it comes to age, sex, ethnicity, language spoken, and type of pathology to better serve varied patient needs. Objectives: Microtia and atresia are two commonly diagnosed conditions with different presentations caused by various pathologies. We aimed to characterize the demographics of the microtia and atresia population in a large metropolitan academic center to identify epidemiological trends and tailor patient care to the needs of a diverse patient population. Study Design: Retrospective Chart Review Methods: Examination of 197 adult and pediatric patient medical records at a large metropolitan academic center between July 2020 and July 2025 was performed. Records were included based on diagnosis and billing codes. Patient demographics including age, sex, race, ethnicity, and language spoken were collected. Data analysis was performed using Microsoft Excel. Results: A total of 197 patients with microtia or atresia seen by otolaryngology providers at a large metropolitan academic center between 2020 and 2025 were included.

112 patients (56.8%) were diagnosed with microtia and 45 (40.2%) with atresia, including congenital atresia of the external ear or osseous meatus, acquired atresia, and absence of the external ear. Patients with microtia were on average younger (16.2 years) than patients with atresia (20.3 years). Patients in both groups were more likely to be male (microtia, 58.9%; atresia, 62.2%). 30.6% of patients with microtia and 37.7% of patients with atresia were of Hispanic or Latino origin, with 32.1% and 28.9% respectively speaking Spanish as their primary language. 40 patients (20.3%) had a genetic syndrome associated with microtia or atresia, including CHARGE syndrome, Treacher Collins syndrome, Branchio-oto-renal syndrome, and craniofacial macrosomia, with an average age of 24.3 years. 43.4% of patients with CHARGE syndrome and 46.7% of patients with Treacher-Collins identified as White. Conclusions: Characterizing the demographic data of a population is crucial to identifying groups who may have different cultural or linguistic needs, which can inform tailored approaches to hearing rehabilitation and optimize auditory outcomes. Many patients with microtia or atresia are of Hispanic origin whereas most patients with a genetic syndrome are white, emphasizing the importance of culturally competent care in improving the patient experience. Demographic clusters from this study may also inform future studies investigating etiology of microtia and atresia.

151. Non-Perceptual Factors Impact Music Engagement and Reward in Adults with Hearing Loss

Emily Gao, BS; Celine Arar, BA; Claire Wang, MHS CPH; Maria Armache, MD; Theodore R. McRackan, MD
MSCR; Alexander Chern, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how hearing loss and other factors can affect music engagement and appreciation in adults. Objectives: Engaging with music is associated with improved quality of life and overall health. Our objective is to examine factors driving music engagement and reward in adults across a spectrum of HL. Study Design: Cross-sectional study. Methods: Adults (18 years or older) with varying degrees of hearing (normal hearing, unaided and aided bilateral sensorineural HL) completed (12/2024-07/2025) validated assessments, including the Barcelona Music Reward Questionnaire (BMRQ), Goldsmiths Musical Sophistication Index (GMSI), and additional items on music engagement. Multivariable linear regression was performed to assess associations between music related outcomes and better hearing ear pure tone average (PTAB), adjusting for age, gender, race, education, hearing aid (HA) usage, and music training (MT). Results: Among 112 participants (mean age 58.0; mean PTAB 39.2 dB, 58% female; MT none to professional, 58% HA users), worsening PTAB was associated with reduced music listening per day (adjusted beta coefficient [b]=-0.35, p=0.02) and approached significance for music perception (GMSI PA b=-0.28, p=0.05), adjusting for covariates. HA use was associated with increased music listening per day (b=0.35, p=0.02) and emotional response to music (BMRQ b=0.33, p=0.04). Increased age was associated with decreased musical reward (BMRQ b=-0.37, p=0.01) and emotional response (BMRQ p=0.003; GMSI p=0.006), while MT strongly predicted music participation (b=0.32, p=0.004), reward (BMRQ b=0.30, p=0.005), and sophistication (GMSI b=0.79, p<0.001). Conclusions: While HL may reduce music engagement, this effect appears partially mitigated by HA usage. Notably, age and MT demonstrate stronger effect sizes and more consistent associations with BMRQ and GMSI scores, suggesting nonperceptual factors may underlie musical sophistication and reward.

152. Fragile X Associated Tremor/Ataxia Syndrome: Neurodegenerative Disease in Otolaryngology

Kyle S. Hrabovsky, BS; Caleb P. Wilson, MD; Eric M. Kraus, MD MS FACS

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the importance of including Fragile X associated tremor/ataxia syndrome in the differential diagnosis of older male patients presenting to the otolaryngologist with sensorineural hearing loss and imbalance, especially when accompanied by tremor, ataxia, or cognitive decline. Objectives: N/A. Study Design: N/A. Methods: This abstract is a case presentation. Results: Fragile X associated tremor/ataxia syndrome (FXTAS) is a late onset neurodegenerative disorder seen in premutation carriers of the FMR1 gene. Though FXTAS is usually managed by neurology, otolaryngologists may be the first to encounter patients who present with symptoms of hearing loss, imbalance, and vertigo. We report a case

of a 78 year old male who presented to our neurotology clinic with progressive ataxia, tremor, cognitive decline, bilateral sensorineural hearing loss, and urinary incontinence. Examination revealed bilateral macrotia and mild sloping to moderate asymmetric, bilateral sensorineural hearing loss. Vestibular testing demonstrated abnormal ocular motor findings suggestive of central/cerebellar pathology. MRI showed T2 hyperintensities in the middle cerebellar peduncles. Genetic testing confirmed a premutation allele of 81 CGG repeats in the FMR1 gene, confirming the diagnosis of FXTAS. Our patient exhibited signs of neuropathy, parkinsonism, and ocular motor dysfunction. An older brother had tremors and ataxia. Such information highlights the importance of considering FXTAS in older male patients presenting with macrotia, hearing loss and imbalance, when accompanied by tremor, cognitive decline, and neurologic symptoms. Notably, our patient had bilateral macrotia, a common physical finding in Fragile X Syndrome but rarely reported in FXTAS. Conclusions: Otolaryngologists should maintain a high index of suspicion for FXTAS in the appropriate clinical setting. Early recognition enables symptomatic and supportive interventions. FXTAS is an often underdiagnosed condition that overlaps with other neurodegenerative disorders. Several of the clinical features of FXTAS may cause patients to present to an otolaryngologist. Timely identification is critical and may aid in appropriate genetic counseling, multidisciplinary management, and treatment.

153. Comparative Risks of Instrumentation vs Irrigation for Cerumen Removal: A Propensity Score Matched Study

Jonathan Z. Hsu, BA; Kaitlin Hori, BS; Janet S. Choi, MD MPH

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize and compare the complication profiles associated with cerumen removal via irrigation versus instrumentation and apply this knowledge to inform clinical decision-making. Objectives: Cerumen impaction is a common condition, often managed with either irrigation or manual instrumentation, depending on clinic settings. This study compares the risk of complications associated with these two cerumen removal techniques using a multi-institutional medical database. Study Design: Retrospective cohort study. Methods: A retrospective cohort study was conducted using the TriNetX research network. Adult patients who underwent cerumen removal via instrumentation (CPT 69210) or irrigation (CPT 69209) were identified. Propensity score matching was applied to adjust for demographics and comorbidities. Adverse outcomes within 1-30 days were analyzed, including otalgia, otitis externa, otitis media, tinnitus, vertigo, tympanic membrane (TM) perforation, and failure of cerumen removal. Results: After matching, 437,151 patients were included in each group. Both techniques demonstrated low overall complication rates (1.8%). Irrigation was associated with increased risk of otalgia (OR 1.20, 95% CI: 1.13-1.28), otitis media (OR 1.20, 95% CI: 1.13-1.29), and otitis externa (OR 1.12, 95% CI: 1.06-1.19). In contrast, instrumentation was associated with higher risk of tinnitus (OR 1.40, 95% CI: 1.29-1.51), TM perforation (OR 1.69, 95% CI: 1.50-1.89), and failure of removal (OR 1.32, 95% CI: 1.29-1.35). Vertigo risk was similar between groups. Conclusions: Cerumen removal using either instrumentation or irrigation carries a small but distinct risk of complications, potentially influenced by clinical setting, techniques and cerumen burden. Clinicians should counsel patients on the specific risks associated with each method and adhere to evidence-based guidelines to minimize complications.

154. Bone Remodeling Blockers and the Ear: Bisphosphonate Use and Reduced Surgical Progression in Otosclerosis

Sudhanvan Iyer, BSA; Maia Smith, MS; Brian McKinnon, MD MBA MPH FACS

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the potential role of bisphosphonates in reducing surgical progression in otosclerosis, including their mechanism of action on bone remodeling and implications for future medical management strategies. Objectives: Otosclerosis, a progressive bone disorder of the otic capsule, can lead to conductive hearing loss, often requiring surgical intervention via stapedectomy or stapedotomy. While bisphosphonates are used to inhibit bone remodeling in other conditions, their potential role in modifying the course of otosclerosis remains underexplored. We aim to evaluate whether bisphosphonate use is associated with a reduced need for surgical intervention in patients with otosclerosis. Study Design: We conducted a

retrospective cohort study using the TriNetX research network to evaluate the association between bisphosphonate use and surgical intervention in patients with otosclerosis. Methods: Patients were divided into two cohorts based on bisphosphonate exposure. Exclusion criteria included a history of stapedectomy/stapedotomy prior to index date. Cohorts were 1:1 matched with 23 clinical variables including age, sex, race, BMI, diabetes, osteoporosis, and other potential confounders. Incidence of progression to stapedectomy/stapedotomy was evaluated using risk ratios (RRs) with 95% confidence intervals. Results: In the matched cohorts, bisphosphonate users had a significantly lower risk of stapedectomy, or stapedotomy compared to non-users (risk: 5.9% vs 13.4%, risk ratio: 2.26 [95% CI: 1.77-2.88], $p < 0.001$). Median followup was 1023 days (control) vs 1201 days (bisphosphonate). Conclusions: Bisphosphonate use in patients with otosclerosis was associated with a significantly lower likelihood of progression to surgery. This data warrants further investigation into bisphosphonates as a potential medical management strategy for otosclerosis. Prospective studies are needed to further evaluate efficacy and hearing outcomes in this population in addition to comparison with the current standard of care.

155. Electrocochleography for Cochlear Implant Patients in a Clinical Setting

Nidhi Jha, BA; William Liu, BS; Meghan Hiss, AuD; Doug Fitzpatrick, PhD; Oliver Adunka, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how electrocochleography (ECoChG) can be used post operatively to assess trends within the cochlear implant population. Objectives: Determine the proportion of subjects that retained cochlear responses and assess factors that influence response preservation. Study Design: Prospective quantitative clinical study Methods: Sixty-three adult cochlear implant (Cochlear Americas or Advanced Bionics) recipients were recruited. ECoChG potentials were measured in clinic at a single timepoint (range: 3 weeks-17 years). Measurements were obtained using each manufacturer's proprietary equipment to deliver tone bursts at various frequencies and intensities via sound tube and foam insert earphone. Results: Of 63 subjects, ages 30-92 years (mean: 66.1 ± 14.4), 22 (35%) had responses significantly above the noise floor including several who had been implanted years earlier. Multiple regression models showed age and months post-surgery as significant factors for obtaining an ECoChG response; both were significantly negatively correlated with response magnitude. The strength of both factors increased when using response magnitude. These models showed manufacturer and electrode type (straight vs/ precurved) were not significant factors in whether a significant ECoChG response was obtained. Conclusions: A third of cochlear implant subjects had measurable responses when recorded post operatively in clinic, including some implanted years earlier. Significant negative correlations were seen with the presence and degree of residual ECoChG response. Residual ECoChG responses were not predictive of better post operative speech outcomes.

156. Intraoperative Electrically Evoked Auditory Brainstem Response Testing in Cochlear Implant Patients with Meniere's Disease: A Matched Cohort Analysis

Anna K. Johnson, BA; Elena Miller, BS; Bradley Kesser, MD; Benjamin D. Lovin, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize how intraoperative electrically evoked auditory brainstem response (eABR) and neural response telemetry (NRT) measurements compare between cochlear implant (CI) recipients with and without Meniere's disease. Objectives: Patients with Meniere's disease generally achieve favorable auditory outcomes with CIs, but greater variability is reported compared with controls. One potential explanation is underlying differences in intraoperative electrophysiologic responses. This study assessed whether Meniere's patients demonstrate distinct intraoperative eABR and NRT features compared to controls. Study Design: Retrospective matched cohort study. Methods: A review of 179 patients who underwent intraoperative eABR testing immediately after CI placement identified 14 patients with Meniere's disease. Fourteen controls with presbycusis or noise induced hearing loss were matched by age at implantation and duration of deafness. Mann-Whitney U tests compared number of wave V- and NRT-positive electrodes, mean wave V latency and amplitude, and mean NRT threshold between groups. Spearman correlations

compared intraoperative eABR measures with postoperative speech outcomes within the Meniere's group. Results: Meniere's patients had fewer NRT-positive electrodes ($p=0.043$) and a nonsignificant trend toward fewer wave V-positive electrodes ($p=0.079$). No significant differences were observed in mean wave V latency or amplitude or NRT threshold between groups. Spearman correlations showed no significant associations between eABR measures and speech perception scores. Conclusions: Meniere's disease CI patients may experience fewer NRT- and eABR-positive electrodes compared to controls, but when present, quantitative values do not appear to be different. This may contribute to CI variability seen with Meniere's patients. eABR and NRT remain useful for assessing auditory pathways, confirming implant placement and function, and guiding CI programming, but may not independently predict speech outcomes in Meniere's patients.

157. Superficial Siderosis Associated with Familial Cerebral Cavernous Malformations Presenting with Sensorineural Hearing Loss and Bilateral Internal Auditory Canal Pseudomasses

Minhie Willow Kwak, BA; Benjamin Aunins, MD; Sugoto Mukherjee, MD; Bradley W. Kesser, MD

Educational Objective: At the conclusion of this presentation, the participants should understand the rare presentation of superficial siderosis with internal auditory canal (IAC) lesions from familial cavernous malformations as well as the corresponding imaging findings. Objectives: To present a case of superficial siderosis (SS), likely secondary to genetic familial cerebral cavernous malformations (CCMs), presenting with sensorineural hearing loss (SNHL) presumably secondary to bilateral internal auditory canal (IAC) masses. Study Design: Case report. Methods: Review of the patient's medical record, audiograms, imaging, and relevant literature. Results: A 59 year old male with history of PDCD10/CCM3 mutation (familial CCMs) and intracranial hemorrhage in 2001 presented in 2023 with transient right facial nerve paresis and ataxia. Audiometric evaluation revealed asymmetric SNHL, with moderate to severe SNHL and 0% word recognition AD. Brain MRI demonstrated a minimally T1 hyperintense, non-enhancing right IAC lesion and extensive supra and infratentorial CCMs. Followup MRI in 2025 revealed ill defined, non-enhancing T1 hyperintense lesions in both IACs, more prominent on the right. High resolution T2 weighted images showed the right IAC lesion insinuating between the facial and vestibulocochlear nerves without a clear origin from either. Given the patient's known CCMs, SS overlying the cerebellar folia, and atypical imaging characteristics of the IAC lesions, these were interpreted as bilateral IAC pseudomasses secondary to SS. Conclusions: The case illustrates a rare presentation of SS mimicking bilateral IAC masses, likely due to chronic hemorrhage from multiple cerebral cavernous malformations. This is the first reported case with a confirmed PDCD10/CCM3 mutation, associated with more severe phenotypes and higher hemorrhage risk. The combination of bilateral IAC pseudomasses, SS, and familial CCMs highlights the importance of considering radiographic context when evaluating IAC lesions and expands the phenotypic spectrum of PDCD10/CCM mutations.

158. A Narrative Systematic Review of the Clinical Outcomes of Concurrent Translabrynthine Vestibular Schwannoma Resection and Cochlear Implantation

Michelle Kwon, BS; Fatimah Coppin, BS; In Seok Moon, MD PhD

Educational Objective: Provide evidence-based guidance on assessment tools for evaluating hearing restoration following concurrent translabyrinthine vestibular schwannoma resection and cochlear implantation, addressing the debate about efficacy in single sided deafness and the importance of cochlear nerve preservation and cochlear integrity in this procedure. Objectives: Assess the effectiveness of concurrent translabyrinthine (TLA) vestibular schwannoma (VS) resection and cochlear implantation (CI) for hearing rehabilitation by evaluating assessment tools, hearing outcome measures, clinical benefits, and procedural limitations. Study Design: A Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)-guided systematic review Methods: We conducted a systematic search of PubMed, Embase, CENTRAL, ClinicalTrials.gov, and WHO-ICTRP. Included studies were English-language articles enrolling adults over 18 years with sporadic VS who underwent concurrent TLA vestibular schwannoma resection and CI. Two independent reviewers screened and extracted data. Any discrepancies were resolved with the principal investigator (ISM). Risk of bias was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal

Checklists. Results: Of 193 studies screened, 29 met the inclusion criteria, consisting of 173 patients who underwent concurrent TLA vestibular schwannoma resection and CI. The most frequently reported preoperative assessment was pure tone average (PTA), used in 141 patients, followed by word recognition score/speech discrimination score (WRS/SDS), reported in 106 patients. Intraoperatively, electrically evoked auditory brainstem response (eABR) was the most common monitoring modality, used in 75 patients. Postoperatively, speech perception tests, including CNC, WRS, and AzBio, were the most frequently reported outcome measures, used in 134 patients. The mean preoperative PTA was 62.4 dB, improving to 46.8 dB postoperatively in 89 patients with CI-aided. Mean speech perception scores improved from 48.3% to 58.7%, reflecting an average gain of 10.4%. There was significant heterogeneity across studies in terms of audiologic measures and reporting standards, limiting direct comparability of outcomes. Conclusions: To our knowledge, this is the first systematic review to comprehensively evaluate assessment tools and analyze pre- and postoperative outcomes in patients undergoing concurrent TLA VS resection and CI.

159. An Unaided Hearing Screening Test That Predicts Cochlear Implant Candidacy

Hailey C. Lewis, BS; Emma Plyler, AuD; Sean P. Holmes, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the nature of a cochlear implant evaluation, which can be costly for patients as well as the health system, and also to understand that our hearing screening test may improve this process in several ways. Objectives: Our goal was to evaluate the predictive value of an unaided 50-word CNC list for its ability to predict cochlear implant candidacy. Study Design: Retrospective analysis at a single tertiary care center. Methods: With IRB approval, we retrospectively reviewed adult patients referred for CI evaluation between September 1, 2024, and June 20, 2025. Best-aided AzBio and CNC scores were reviewed and compared to scores from the unaided CNC hearing screening test. We included patients over age 18, with moderate-to-profound SNHL, who were English speaking, and had an unaided WRS <64%. We excluded those with conductive/mixed loss, age <18, pregnancy, prisoner status, or incomplete evaluation. Results: 26 ears met inclusion criteria, results were compared between groups separated by type of hearing loss. The unaided 50-word CNC screen had 95.24% sensitivity, 100% specificity, 100% PPV, and 50% NPV. Accuracy was 95.45%. For comparison, the aided CNC test had 95.83% sensitivity, 100% specificity, 100% PPV, 66.67% NPV, and 96.15% accuracy. Conclusions: Our unaided 50-word CNC screening test performs similarly to aided testing and could serve as a fast, standardized way to guide clinical decision making. This may help reduce barriers to CI care and improve efficiency for all members of the cochlear implant team.

160. A Silent Intruder: Unique Granulomatous Pathology in COVID-19 Associated Mastoiditis

Hudson Liu, BS; Corinne A. Pittman, MD; Selena E. Briggs, MD PhD MBA

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize granulomatous mastoiditis as a potential COVID-19 complication, describe its unique histopathologic features, and understand its implications for the diagnosis and management of audiologic symptoms in patients with a history of SARS-CoV-2 infection. Objectives: Although COVID-19 has been linked to hearing loss and vestibular symptoms, its pathologic effects on the mastoid and middle ear remain poorly characterized. Post-mortem studies have detected SARS-CoV-2 in temporal bone tissue, yet few have evaluated live patient histopathology. This study presents the first clinical series examining mastoid pathology post-COVID-19, revealing a distinct inflammatory pattern not previously described. As otologic symptoms following infection continue to emerge, characterizing underlying pathology remains a scientific and clinical priority. Study Design: This study is a retrospective case series. Methods: We performed a retrospective case series within a multi-hospital, urban academic health system. Four adult patients with documented COVID-19 underwent mastoidectomy between 2024-2025. Audiometric data, CT/MRI imaging, intraoperative findings, and histopathology were reviewed. Results: All four patients demonstrated unexpected granulomatous inflammation, including multinucleated giant cells and organized granulomas, absent in conventional bacterial or viral mastoiditis. Imaging often showed minimal disease, despite robust histopathologic findings. Three patients

exhibited mild unilateral SNHL in the affected ear. Speech discrimination scores ranged from 76-88% in the same three patients, while one maintained normal audiometric thresholds and speech scores despite similar pathology. No history of autoimmune or granulomatous disease was present, implicating post-viral immune dysregulation as a potential driver. Conclusions: This case series identifies a unique granulomatous mastoiditis pattern emerging after COVID-19. The presence of robust histopathologic changes in patients with mild symptoms and limited imaging abnormalities suggests an underrecognized disease process with potential inner ear consequences. These findings support enhanced post-COVID otologic surveillance and motivate further investigation into the immunopathology driving these changes.

161. Feasibility of Automated Speech Recognition for Non-English Speaking Cochlear Implant Patients

James Lu, BA; Caleb Fan, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to evaluate the validity and feasibility of using Whisper, an open source speech recognition software, in assessing speech perception for cochlear implant patients; explore the potential for Whisper to support non-English speaking patients during speech perception testing; discuss the role of artificial intelligence in expanding access to cochlear implant care. Objectives: Cochlear implant (CI) patients with limited English proficiency face significant barriers in speech perception assessment due to language mismatches with test materials and audiologists. This study evaluates the feasibility of using Whisper, an open source multilingual speech recognition model, to support speech transcription and recognition with the goal of improving accessibility and equity in cochlear implant care. Study Design: This is a proof of concept study using multilingual audiologic recordings. Whisper transcribes the audio recordings, and a code base measures the accuracy of Whisper in accordance with the AzBio scoring system. Methods: Whisper was applied to recordings of AzBio sentences in English and other speech perception test materials in Spanish and Chinese to simulate CI testing. Transcription accuracy was evaluated across the three languages using the mean percent correct score (total words repeated correctly / total words presented) as per audiologic conventions. Simulated speech perception scores were compared against ground truth to assess clinical viability. Results: Whisper demonstrated high accuracy across multiple languages with average transcription scores of 99.0% for English (n=4), 97.1% for Chinese (n=5), and 99.2% for Spanish (n=3). The model preserved speaker intelligibility across a range of audio qualities and speech patterns. These preliminary findings support Whisper's robustness in transcribing both English and non-English speech, highlighting its potential to support CI testing in all populations. Conclusions: Whisper may offer a scalable, language inclusive solution to improve speech perception testing for both English and non-English speaking CI patients. Future clinical validation will directly compare Whisper to an audiologist's scoring of CI patients, and this will determine Whisper's utility in real world audiology settings.

162. Cochlear Implantation in the Very Elderly: An Applied Ethical Framework

Akhil Mandalapu, BS; Wynne Zheng, MA (Presenter); Nora Hutchinson, MDCM MPhil; Yew Song Cheng, BM BCh

Educational Objective: At the conclusion of this presentation, the participants should be able to weigh the risks, benefits, and other medical decision-making considerations between CI and other common elective surgeries. Objectives: Highlight ethical considerations and knowledge gaps that impact shared decision-making around CI in elderly patients. Study Design: Literature Review. Methods: A review of recent literature about the risks and benefits of CI and other elective procedures commonly performed in the elderly was performed. This comparison acted as the basis of an ethical framework for the shared decision-making process before CI. Results: CI is associated with a low peri-operative risk, lower than that of knee arthroplasties, yet higher than cataract surgery. The post-operative risk of vertigo is an important consideration in the elderly. CI has a similar rehabilitation timeline as knee surgery of 6-12 months; however, CI recipients experience a wider variability in the extent of benefit due to mediating factors such as preexisting hearing levels and cognitive function. Conclusions: CI poses unique risks and benefits that distinguish

it from other common elective procedures. Ethical principles of autonomy must be balanced against beneficence and non-maleficence in decision-making when considering CI in the very elderly.

163. Mobile Hearing Test Applications: A Primer for Clinicians

Akhil Mandalapu, BS; Armita Norouzi, BA (Presenter); Megan Durr, MD; Yew Song Cheng, BM BCH

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the key features, clinical utility, and limitations of Mobile Hearing Test Applications (MHTA) when considering integration into clinical practice. Objectives: To summarize the current literature on the clinical validity of consumer MHTAs. Study Design: Narrative Review. Methods: A review of recent systematic reviews, meta-analyses, multi-center trials, and clinical guidelines was performed, focusing on studies comparing MHTAs to pure tone audiometric (PTA) testing. Results: MHTAs have been studied in a wide variety of settings (sound booths, emergency departments, and in homes) and across ages. A meta-analysis found that MHTAs show strong correlation with PTA, with pooled (25 studies, n=4470) sensitivity and specificity of 89% and 93%, and area under the curve (AUC) of 0.95, with mean threshold differences that are within 10 dB HL. Accuracy is higher for normal hearing or mild loss and declines for moderate-to-severe or asymmetric loss. Test-retest reliability varies, improving with repeated use, likely due to familiarity with the test. Environmental noise, headphone calibration, and the device used can affect results. Few MHTAs have undergone rigorous validation, and features vary. Speech and digits in noise tests may mitigate calibration issues, but do not provide hearing thresholds. Conclusions: MHTAs offer accessible, low-cost screening with reasonable accuracy in select clinical scenarios. There are some broad limitations and application specific differences, but MHTAs have potential value as a clinical tool when conventional audiometry is impractical or unavailable.

164. Noonan Syndrome: Characterization of Hearing Profiles and Outcomes for Cochlear Implant Recipients

Sylvia Mihailescu, BSE; Ezer H. Benaim, MD; Dakota Sharp, AuD CCC-A; Margaret T. Dillon, AuD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the various hearing profiles for patients with Noonan syndrome and discuss outcomes for those who undergo cochlear implantation. Objectives: This study reviewed the audiological profiles of patients with Noonan syndrome (NS) and outcomes for those who underwent cochlear implantation. Study Design: This study is a retrospective chart review of a tertiary hospital database. Methods: The database was queried for patients with a genetic or clinical diagnosis of NS. Data included newborn hearing screening results, timing of growth hormones, unaided pure tone thresholds, and speech recognition. For patients with cochlear implant (CI) evaluations, the data also included surgical considerations and operative findings, mapping adjustments, and outcomes with the CI. Results: 127 patients (48 female) with NS were identified. 26 patients had hearing loss documented. The majority had either unilateral (n=6) or bilateral (n=10) sensorineural hearing loss. 7 patients completed a CI evaluation and 6 underwent bilateral cochlear implantation, 2 of which were sequentially implanted. All CI users experienced an improvement in speech recognition, though variability was noted with the introduction of growth hormones. Individual results for each cochlear implant patient will be discussed. Conclusions: The audiologic profiles of patients with Noonan syndrome vary. For those who undergo cochlear implantation, improvements in speech recognition are experienced. Individualized mapping procedures may be warranted after the introduction of growth hormones.

165. Rare Nontuberculous Mycobacterial Cochlear Implant Infections: A Case Series

Claude G. Nganzeu, MD; Jacob Kahane, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how non-tuberculous mycobacterial CI infections are diagnosed and treated. Participants should have tools to have a high index of suspicion in similar clinical scenarios to guide timely and appropriate management. Objectives: Cochlear implant (CI) infections are rare but can lead to serious complications. While staphylococcus aureus and pseudomonas aeruginosa are the most common pathogens, emerging data suggest atypical organisms like mycobacterium abscessus

may play a role, particularly in immunocompromised patients. The objective of this study is to raise awareness of nontuberculous mycobacterium as an emerging pathogen involved in CI infection, emphasize the diagnostic and treatment challenges it poses, and advocate for a high index of suspicion in similar clinical scenarios to guide timely and appropriate management. Study Design: The study is a case series of two patient presentations. Methods: We present two cases of CI infection with mycobacterium abscessus. Clinical presentation, imaging, microbiology, treatment, and outcomes were reviewed. Both patients were immunocompromised with remote history of bilateral CI and presented with mastoid swelling, otorrhea, and pain. Cultures from mastoid washouts confirmed M. abscessus, despite negative acid-fast bacilli (AFB) smears. Results: Both cases required explantation and extended IV/oral antibiotic therapy guided by infectious disease specialists. One patient was treated with vancomycin, ceftriaxone, linezolid, and cefdinir; the other with cefepime, vancomycin, linezolid, and trimethoprim-sulfamethoxazole. Both showed symptom resolution postoperatively. Conclusions: Nontuberculous mycobacterial CI infections, though rare, must be considered in patients with recalcitrant infections, especially those who are immunocompromised. Diagnosis is challenging due to low AFB sensitivity and drug resistance. A high index of suspicion, timely explantation, and prolonged tailored antimicrobial therapy are essential for successful outcomes.

166. National Trends in Facial Nerve Decompression for Patients with Bell's Palsy

Marcelina Puc, MS; Christopher Z. Wen, MD; Adam C. Kaufman, MD PHD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe how rates of facial nerve decompression (FND) in Bell's palsy (BP) patients have changed over time and how these patients differ from other patients with BP. Objectives: Describe national trends in facial nerve decompression (FND) in Bell's palsy (BP) patients in relationship to incidence, race, ethnicity, insurance coverage, and urbanicity. Study Design: Retrospective cohort study of patients with BP between 2015 and 2024 within the Epic COSMOS database. Methods: A cross-sectional analysis identified patients with BP and stratified by surgical encounters. Demographic information, geographic region, and urban-rural code were then collected. Results: 1.1 million encounters for BP were analyzed. 8729 (0.77%) underwent a surgical procedure for BP, 249 (2.85%) of whom underwent FND. Patients who underwent surgical procedures for BP were more likely to be non-Hispanic ($p < 0.000001$; OR 2.04, 95% CI 1.91-2.20), white ($p < 0.000001$; OR 1.78, 95% CI 1.68-1.88), older than 65 ($p < 0.000001$; OR 2.00, 95% CI 1.91-2.08), live in a rural setting ($p < 0.000001$; OR 1.17, 95% CI 1.10-1.24), and utilize private insurance ($p < 0.000001$; OR 1.48, 95% CI 1.41,1.57). Patients who underwent FND were more likely to be non-Hispanic ($p < 0.0001$; OR 2.22, 95% CI 1.44-3.58) when compared to patients who did not undergo surgery. The incidence of FND has decreased nationally even as the overall number of surgeries for BP has increased. Illinois and Iowa had the highest incidence of FND with 1.15 and 1.08 per 100,000 surgeries, respectively. Conclusions: BP patients who undergo surgical intervention differ significantly from those who do not. Over the past eight years, there is a slight decrease in the number of FND being performed. FND for BP exhibits a high degree of geographic variability.

167. Otologic Clues to Earlier NF2 Diagnosis: Characterizing Diagnostic Timelines Across International Health Systems

Marianne Rara, BS; Ellee Vikram, BS; Ella J. Lee, BS; Khushi Bhatt, BS; Hamid R. Djalilian, MD; Mehdi Abouzari, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how otologic symptoms relate to the timing of neurofibromatosis type 2 (NF2) diagnosis. Objectives: There is a paucity of information regarding the presence of otologic symptoms prior to NF2 diagnosis and possible consequent diagnostic delays. The objective of this database analysis was to evaluate whether the diagnostic timeline of NF2 is related to the presence of otologic symptoms. Study Design: Retrospective cohort study using de-identified EHR data from the TriNetX network. Methods: The Global Collaborative Network in TriNetX was queried for EMR records between 2010-2024 and identified patients diagnosed with NF2. To capture all patients with prior otologic symptoms and assess diagnostic timing, two cohorts were created based on the presence or absence of prior dizziness, tinnitus, facial

nerve disorders, or conductive and sensorineural hearing loss ≥ 1 day before NF2 diagnosis (cohort 1 and cohort 2, respectively). The primary outcome was time to NF2 diagnosis; secondary outcomes included prevalence and timing of CNS/vestibular symptoms, tumors, ophthalmic, and cutaneous manifestations. Results: After matching, 484 patients were included in each cohort. Mean age at NF2 diagnosis was 46.7 $\pm$ 19.2 and 46.1 $\pm$ 18.9 years in cohorts 1 and 2, respectively. The presence of prior otologic symptoms was associated with a significantly shorter time to NF2 diagnosis (HR: 1.276, 95% CI: 1.011-1.513, $p = 0.005$). Patients with prior otologic symptoms had a median interval of 363 days (IQR= 83-1156; mean= 832; range: 1-4626), while those without prior symptoms had a median of 869 days (IQR= 221-1641; mean= 1115; range: 4-4569). No significant differences were found in the prevalence of CNS/vestibular symptoms (RR: 0.045, $p = 0.68$), tumors (RR: 0.117, $p = 0.074$), ophthalmic (RR: 0.056, $p = 0.356$), and cutaneous manifestations (RR: -0.040, $p = 0.125$). Further, no significant differences were found in the length of time from NF2 diagnosis to CNS/vestibular symptoms (HR: 1.620, $p = 0.06$), tumors (HR: 1.440, $p = 0.38$), ophthalmic (HR: 1.079, $p = 0.53$), and cutaneous manifestations (HR: 0.562, $p = 0.71$). Conclusions: The presence of otologic symptoms may be associated with earlier clinical detection of NF2. No significant differences were found between groups in the prevalence or timing of CNS/vestibular symptoms, tumors, or ophthalmic and cutaneous manifestations.

168. Hearing Loss, but not Use of Hearing Aids, Impacts Perception of Speech Quality

Jordan A. Rubenstein, BA; Isaac L. Alter, AB; Ramzi K. Elased, BA; Jessica Galatioto, AuD; Jennifer Jones, AuD; Anil K. Lalwani, MD

Educational Objective: Participants should be able to understand the relationship between hearing loss, hearing aid use, and perception of speech quality, including how hearing aids do not further degrade the subjective enjoyment of speech among individuals with hearing loss. Objectives: While hearing aids (HAs) are known to improve speech understanding in individuals with hearing loss (HL), anecdotal reports suggest that they may degrade perceived speech quality (SQ). This study evaluated the effects of HL and HA use on perceived SQ. Study Design: Cross-sectional survey. Methods: Adult bilateral HA users with more than 3 months of HA use were recruited. They completed an online survey including the previously validated Columbia Speech Quality Instrument (CSQI) under unaided and aided conditions. Linear regressions analyses examined the relationship between CSQI scores and HL severity. Results: Twenty-four participants (mean age: 72.7 $\pm$ 17.95 years) had a mean pure tone average (PTA) of 50.5 $\pm$ 16.5 dB HL, word recognition score (WRS) of 87.1 $\pm$ 18.3%, and an average of 16.1 $\pm$ 11.7 years of HA use. Participants with HL had significantly lower CSQI scores (61.1 $\pm$ 13.6) compared to normal hearing historical controls (68.7 $\pm$ 7.0; $p = 0.0078$). However, no significant difference was found between unaided (61.0 $\pm$ 12.0) and aided CSQI scores ($p = 0.93$). Neither PTA nor WRS significantly predicted CSQI scores in unaided or aided conditions. Conclusions: Perceived speech quality is diminished in individuals with HL but is not significantly influenced by the degree of HL or improved by HA use. Importantly, HA use does not degrade perceived SQ, countering anecdotal concerns. These findings may help reassure patients considering hearing rehabilitation.

169. Evaluating the Accuracy of Artificial Intelligence Generated Patient Counseling for Vestibular Schwannoma

John M. Sommerfeldt, MD; James J. Pierre, MD; Jakob L. Fischer, MD; Charles A. Riley, MD; Anthony M. Tolisano, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the role that artificial intelligence systems such as ChatGPT can play in enhancing patient counseling for complex and difficult to understand diagnoses. Objectives: To compare the quality of Google, ChatGPT, and expert providers in answering patient questions regarding vestibular schwannoma. Study Design: Observational. Methods: 10 commonly asked patient questions regarding vestibular schwannoma were generated based on search engine frequency data. Answers to the questions were then generated from Google search, ChatGPT, and expert provider. Response quality was graded by three blinded, independent board certified otolaryngologists using DISCERN scores, after which total scores, subsection scores and readability scores were compared. Inter-rater agreement was determined using Fleiss-Kappa score. Results: Inter-rater agreement was high with a Fleiss' Kappa score of 0.73. Total DISCERN scores

between Google, ChatGPT, and expert response were 23.7, 30.4, and 28.4, respectively, with statistically significant differences between both ChatGPT and expert response compared with Google. The average word count for ChatGPT was 213.9 words, which was significantly higher than Google (68.8) and expert response (108.2), though had the highest readability score with a Flesch Reading Ease score of 33.1. Conclusions: ChatGPT generated fair quality information in response to questions regarding diagnosis and management of vestibular schwannoma, which was not significantly different from human expert responses. The overall quality of response was improved with treatment related questions as opposed to questions not related to treatment. While concern often exists regarding the quality of artificial intelligence generated information, the results of this study demonstrate that ChatGPT can be a useful tool for patient counseling for vestibular schwannoma.

170. Hearing Conservation: Another Military Regulation or a Safety Net to Protect Active Duty Service Members?

John M. Sommerfeldt, MD; Grace A. Johnson, MD; Brian S. Chen, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the importance that hearing protection programs and education play in preventing service related hearing loss among active duty military service members. Objectives: To better understand the knowledge, attitudes and behaviors of active duty service members regarding hearing conservation, both within the military and in their personal lives. Study Design: Cross-sectional. Methods: All active duty service members presenting for hearing conservation audiograms during a 4 week period were provided an anonymous intake survey. Deidentified results were collected and used to perform descriptive statistics and analysis. Mann-Whitney U test and one way ANOVA were used to compare incidence of sudden hearing loss in military and recreational settings and evaluate differences among groups. Results: 664 surveys were collected. 80% of respondents indicated wearing ear protection almost always while using firearms. 73% said that ear protection had fallen out at least 1-5 times during their military career. 37% reported an experience of sudden tinnitus or hearing loss associated with a military exposure, compared with only 22% who indicated a similar experience associated with recreational or non-military exposures ($p = 5.88e-9$). The majority of reported sudden hearing loss was from senior enlisted service members (52%), which trended towards but did not approach significance ($p = 0.059$). Only 23% of those with symptoms from military exposure sought medical care. 15% reported difficulty understanding colleagues in everyday situations without background noise, and 19% reported listening to music loudly enough that it was difficult to hear others speaking. 51% of respondents stated they were not worried about hearing protection and only wear protection when required. 52% felt that their command rarely or only occasionally discussed hearing protection, and 19% stated that they had never been taught how to properly use ear protection. Conclusions: Despite hearing conservation efforts, many service members suffer from hearing loss due to military exposures. Our study demonstrates a need for greater emphasis on teaching proper insertion of ear protection, command reinforcement of hearing conservation, and monitoring during training exercises to prevent injuries from improper use of protection. Providers must act quickly when suspecting sudden hearing loss to optimize hearing outcomes.

171. Conservative Management of Temporal Bone Fractures with Facial Nerve Weakness

Kenny Nguyen, MD MEd; Alexa Pearce, BA; Alaina Baggett, BS; John Dornhoffer, MD; Robert Saadi, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the typical timeline of facial nerve recovery after a temporal bone fracture (TBF) and distinguish whether surgical decompression versus conservative steroid therapy influences House-Brackmann (HB) grade outcomes. Objectives: A feared complication of TBF is partial or complete paralysis of the facial nerve. The aim of this study was to compare recovery outcomes following surgical versus conservative management of TBF-associated facial nerve injury. Study Design: Retrospective cohort analysis of patients treated between 2014 and 2024 at a single tertiary academic center. Methods: We identified 33 adult patients (34 affected sides) with CT-confirmed temporal bone fractures and ICD-

coded facial paralysis, who had at least one follow-up visit. Data collected included demographics, injury mechanism, fracture characteristics (laterality, otic capsule involvement, ossicular disruption, or facial canal violation), and nerve study results if completed. Facial function was graded by HB at presentation and most recent follow-up. Management included surgical decompression or conservative steroid taper. Paired Wilcoxon signed-rank tests compared median HB grades over time and between groups. Results: Median follow-up was 136 days (IQR: 49-375 days; range: 8-967 days). Overall, HB grades improved significantly from initial evaluation to most recent follow-up ($p=0.028$). Although grades initially worsened before follow-up ($p=0.011$), they recovered markedly by most recent visit ($p<0.001$). In the surgical subgroup, no immediate improvement was seen ($n=4$, $p=0.41$), whereas the steroid only group showed significant gains ($n=13$, $p=0.042$). Patients who received both or neither intervention ($n=16$) were omitted from surgical and steroid-only subgroup analysis. Conclusions: While an early decline in facial nerve function after TBF is common, most patients treated conservatively regain meaningful function, supporting non-surgical management as the preferred initial approach for TBF-related facial paralysis.

172. Speech Quality Perception with Cochlear Implants Over Time in Patients with Single Sided Deafness

Nandita V Vegesna, BS; Isaac L. Alter, AB; Scott Kelly, BS; Megan E. Kuhlmeier, AuD; Meghan A. Despotidis, AuD; Anil K. Lalwani, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the relationship between total cochlear implant (CI) use duration and speech quality perception (SQP) and illustrate short-term changes in SQP across the CI ear, normal-hearing (NH) ear, and binaural listening conditions. Objectives: Cochlear implants (CIs) improve speech perception (SP) in individuals with single-sided deafness (SSD), typically reaching peak performance within 6-12 months. In contrast, changes in perception of speech quality (SQ) which reflects subjective clarity and naturalness of speech over time are poorly understood. This study evaluates longitudinal changes in SQ in SSD CI users. Study Design: Prospective, cross-sectional with repeated measures. Methods: Adult unilateral CI users with SSD were recruited from tertiary academic medical center. Participants completed the validated Columbia Speech Quality Instrument (CSQI) at two time points: enrollment (T1) and 8-15 months later (T2). SQ was assessed separately in the CI ear, normal-hearing (NH) ear, and binaural (CI+NH) condition. Results: Nine participants completed both assessments. At T1, mean (SD) CI use duration was 2.0 (2.1) years; the interval between T1 and T2 was 9.0 (5.0) months. No significant changes in CSQI scores were observed in the CI ear (T1: 50.2+/-7.8; T2: 51.5+/-12.9; $p = 0.66$) or in the binaural condition (T1: 69.8+/-11.1; T2: 68.2+/-6.6; $p = 0.65$). However, a significant decline was seen in the NH ear (T1: 75.1+/-4.7; T2: 68.8+/-9.1; $p = 0.03$). Duration of CI use was not significantly correlated with CSQI scores in any condition. Conclusions: Similar to SP, SQ appears to stabilize after one year of CI experience. The unexpected decline in SQ from the NH ear, despite stable binaural scores, may reflect cortical plasticity in how auditory input is integrated. These findings underscore the importance of ongoing audiological monitoring to ensure optimal CI programming in the context of evolving binaural auditory processing.

173. Relation of Sensorineural Hearing Loss and Treatment to Dementia in the All of Us Research Program

Hannah N. W. Weinstein, BA; Stuart D. Powell, ME (Presenter); Ramzi K. Elased, BA; Justin S. Golub, MD MS

Educational Objective: Attendees will understand how treatments of hearing loss affect the association between sensorineural hearing loss (SNHL) and dementia in a large, multicentered electronic health record based study. Objectives: To investigate the association between SNHL and dementia and how interventions affect this relationship in a large national cohort. Study Design: Cross-sectional epidemiologic study. Methods: Deidentified data was analyzed from ≥ 18 year olds in the All of Us Research Program. The exposure was bilateral SNHL defined by ICD-10 code (H90.3). The outcome was dementia (F03, G30-32). Multivariable regression assessed odds of dementia in participants with and without hearing loss, controlling for confounding variables (age, sex, race, ethnicity, education, hypertension and type II diabetes). Additional analysis included history of hearing aid use (Z46.1, Z497.4) or implanted hearing device (e.g. cochlear implant; Z45.32, Z96.2). Results: The cohort included 375,438 adults. Mean (SD) age

was 55 years (+/- 17). 61.7% were female, 6.7% (n=25,260) had bilateral SNHL, 2.4% (n=9,163) had dementia, 1.5% (n=5,630) had a history of hearing aid use, and 0.1% (n=415) of implanted hearing device. The odds of dementia for those with SNHL were 2.1 times (95% CI 2.0-2.2; p<0.001) higher compared to those without SNHL. When a history of hearing aid use or implanted hearing device were included in the model, the odds of dementia were 2.0 times (95% CI 1.9-2.1; p<0.001) and 2.1 times (95% CI 2.0-2.2; p < 0.001) higher, respectively. Conclusions: In the All of Us Research Program, bilateral SNHL is strongly associated with dementia. SNHL treatments did not significantly attenuate the association, likely limited by the low percentage of participants with a documented history of hearing loss treatment as well as poor variable quality.

174. How I Do It: Autologous Mastoid Cortex Bone Graft for Multilayer Repair of Lateral Skull Base Defects

Christopher Z. Wen, MD; Daniel C. Fong, BS; Vera Bzhilyanskaya, BS; Adam C. Kaufman, MD PhD; Ronna Hertzano, MD PhD; David J. Eisenman, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the technique and utility of harvesting monocortical mastoid bone as an autologous graft for repair of lateral skull base defects. Objectives: Describe the use of mastoid cortex as an autologous bony graft for multilayer repair of lateral skull base cerebrospinal fluid (CSF) leaks and encephaloceles. Study Design: Retrospective review supplemented with surgical footage of a representative case. Methods: A retrospective review of patients undergoing lateral skull base CSF leak repair was conducted between June 2016 and June 2025. Surgical details including demographics, follow-up times, and complication rates were collected. The representative procedure begins with a standard postauricular approach to the mastoid cortex. Using surface landmarks, the bone graft is marked, then outlined with a small cutting burr. Use of a 90° oscillating saw allows elevation and final graft harvest from the underlying mastoid air cells. A standard complete mastoidectomy is performed to identify the dural defect. Reconstruction is performed in layers, with intracranial dural replacement graft, fibrin sealant patch, and bone graft. This was bolstered with an extracranial onlay graft of dural replacement, fibrin sealant, and hydroxyapatite cement, before being closed in standard fashion. Results: 34 patients were identified as having undergone the above procedure. 74% (n=25) were female, with average age at surgery 60.3 years (SD 9.2). Average follow-up time was 12.5 months (SD 17.5 months). There were no occurrences and no major complications. Conclusions: Utilization of the mastoid cortex offers an effective, accessible, and easy to implement alternative to other rigid autologous grafts when repairing lateral skull base defects.

175. Closing the Gap: The Value of Speech to Text Technology When Traditional Hearing Rehabilitation Is Inadequate

Sophia S. Yin, BS; Yew Song Cheng, MD

Educational Objective: At the conclusion of this presentation, readers should recognize the value of speech to text technology in a clinical setting and understand the strengths of the technology and limitations of various popular platforms providing this service. Objectives: This study reviews the current literature on the use of speech to text (STT) technologies in the clinical setting, particularly for those who receive limited benefit from hearing devices. These include individuals with profound bilateral hearing loss, auditory processing disorders, and other barriers to auditory rehabilitation. Study Design: This work is a narrative review and comparative commentary informed by published literature and web based evaluation of six commonly used STT tools. Methods: The analysis focuses on six popular STT platforms: Microsoft Azure, Google Live Transcribe, Amazon Transcribe, Otter.ai, Ava, and XRAI Glass. We reviewed data and information on each tool's transcription accuracy, speaker identification, medical terminology support, translation capabilities, and HIPAA compliance. Results: Although no studies have compared the platforms head to head, available information suggests XRAI Glass and Otter.ai have the highest accuracy for real time transcription, while Microsoft Azure and Amazon Transcribe have the highest backend transcription accuracy for post session documentation. Only Amazon Transcribe and Microsoft Azure offer programs specific to medical terminology. HIPAA compliance requires both meeting regulatory standards and having a business associate agreement, which

is fully met only by Ava, Amazon Transcribe Medical, and Google Cloud STT. Lastly, only XRAI Glass, Google Live Transcribe, and Ava offer real time translation into other languages. Conclusions: STT tools offer significant potential to improve clinical communication, particularly for deaf and hard of hearing patients and those with limited English proficiency. Tool selection should be guided by setting specific needs, HIPAA compliance, and language capabilities. Amazon Transcribe Medical, Ava, and XRAI Glass are strong clinical STT options.

176. Large Language Models vs. Centralized Medical Coders: A Comparative Study of Operative Note Coding Accuracy and Financial Impact in Neurotology

Stephanie M. Younan, BS MPH; Jolie L Chang, MD; Yew Song Cheng, BM BCH; Nicole T Jiam, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to evaluate the differences in coding accuracy and financial impact between a large language model and centralized human coders when applied to complex neurotology operative notes. Objectives: Although centralized medical coding is designed for efficiency, its application to complex specialty notes may result in coding inaccuracies that affect institutional reimbursement. This study evaluates large language models' (LLMs) coding accuracy and financial impact against centralized human coders for neurotology operative notes. Study Design: Retrospective Cohort Study Methods: We conducted a retrospective review of 45 operative notes spanning the entire neurotologic practice. Each note was independently coded by the institution's LLM versus the medical center's coding team. The "ground truth" was defined by the surgeon, American Academy of Professional Coders (AAPC), and American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS) coding guidelines. Primary outcomes were coding accuracy and financial variance, calculated via Relative Value Units (RVU). Results: The LLM achieved higher coding accuracy (82.2%) compared to centralized human coders (40%). This pattern led to an average negative variance (human coders' ground truth) of -10.48 RVUs per case, projecting to an annual divisional revenue loss of 642 RVUs. In contrast, LLM errors were primarily from over coding, resulting in a positive variance (LLM's ground truth) of +1.05 RVUs per case. The most common cases in which human coding errors occurred were neurotology/skull base (41%, n=11, -26.6 RVUs/case) and otology (37%, n=10, -9.21 RVUs/case), relative to oncologic cases (22%, n=6, -16.17 RVUs/case). Human errors included isolated under coding (n=13), incorrect codes (n=13), and completely missed cases (n=1). Conclusions: The AI platform significantly outperformed human coders by 42.2%, mitigating revenue loss from under coding. However, the LLM's propensity for over coding suggests a hybrid model where coders verify fine-tuned LLM outputs may be an optimal solution for subspecialty medical coding.

177. Manual Versus Automated Measurement of Tegmen Height Above External Auditory Canal Using Photon Counting CT and Deep Learning Temporal Bone Segmentation

Aunika Zheng, BS; Andy S. Ding, MD MSE; Charles C. Della Santina, MD PhD; Francis X. Creighton, MD; George S. Liu, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize limitations and opportunities to enhance assessment of tegmen height on preoperative temporal bone CT scans. Objectives: Preoperative assessment of temporal bone CT imaging is important for identifying a low hanging tegmen, which can limit access to the antrum and increase risk of tegmen injury in mastoidectomy. Manual measurement of tegmen height above the external auditory canal (EAC) on coronal CT cross-sections varies with the chosen cross-section and head orientation. This study compares manual measurements of EAC to tegmen distance in 2D cross-sections with automated measurements using 3D segmentations and photon counting CT. Study Design: IRB approved retrospective study. Methods: Photon counting CT scans of 10 temporal bones from 6 human subjects were deidentified. The EAC to tegmen distance was manually measured in 2D using the coronal cross-section with the scutum sharply in view and the corresponding sagittal cross section. Ground truth measurement of minimum EAC to tegmen distance was calculated in 3D using segmentations generated by a validated nnU-Net deep learning model. Paired t-tests were used for statistical comparisons. Results: EAC to tegmen 2D coronal measurements were larger than 2D sagittal measurements (3.44+/-1.35 mm, mean+/-SD difference, p less than 0.0001) and automated 3D measurements

(3.72 $\pm$ 1.00 mm, p less than 0.0001) in all temporal bones. There was no significant difference between sagittal and 3D EAC to tegmen distances (0.27 $\pm$ 0.30 mm, p greater than 0.05). Average distances from coronal and sagittal to ground truth EAC-to-tegmen line measurements were 1.44 $\pm$ 0.82 mm and 0.96 $\pm$ 0.87 mm, respectively. Conclusions: Manual estimation of tegmen height above the EAC varies depending on the orientation and chosen CT cross-section for analysis. Deep learning 3D analysis of minimum EAC to tegmen distance demonstrates promise as a reliable and automated method for assessing tegmen height.

178. Assessing Surgical Skill Level in Mastoidectomy Using Motion Analysis

Lily N. Zimmermann; Michaela F. Close, MD; Vineeth Sama, Meng; Ted A. Meyer, MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the potential of video-based analysis tools to enhance training and feedback in otologic surgery. Objectives: To develop a motion-based video analysis system capable of objectively assessing surgical skill level and identifying the procedural stage during mastoidectomy. Study Design: Quantitative observational study using retrospective intraoperative video analysis of mastoidectomy procedures across varying levels of surgical training. This study builds on the need for objective, reproducible tools in surgical education, aiming to move beyond traditional subjective evaluations by mentors. Methods: We analyzed 65 one-minute intraoperative mastoidectomy videos of PGY2-PGY5 residents, fellows, and attendings using Kinovea motion tracking software, which determined the position of the drill and suction irrigator across time (x,y,t). Custom MATLAB code was generated to quantify surgical motion. Drill stroke details (length, velocity, number, time, linearity) were determined to evaluate both efficiency and precision. Positional data and coordination between instruments were also recorded to assess bimanual skill. Movement patterns of the instruments were categorized into four types: 1) one instrument moving at a time, 2) both instruments moving in unison, 3) both instruments moving but with distinct patterns, 4) independent movement of both instruments. Videos at various points in the mastoidectomy procedure were analyzed with the code (5-6 minutes of drilling mastoid, antrum, early facial recess, late facial recess). ROC and multivariate analysis were used to identify patterns between surgical level and procedural stage. Results: Significant differences in instrument movement were observed across training level and stage of surgery. During the mastoid and antrum phases, surgeons with greater experience displayed fewer, longer, and more linear drill strokes with higher velocity ($p < 0.001$). Additionally, advanced training was also associated with increased simultaneous instrument movement and bimanual coordination, suggesting greater efficiency and control. Multivariate analysis identified stroke length ($p = 0.002$) and drill time in motion ($p = 0.027$) as key predictors of procedural step, indicating that video analysis metrics might reflect both surgeon experience and case complexity. Conclusions: Video analysis has the potential to objectively quantify surgical motion, differentiate skill level, and capture transitions across procedural stages. These findings lay the groundwork for a motion-based analysis system to aid both trainees and mentors in determining surgical level and provide personalized training in otologic surgery.

PEDIATRIC OTOLARYNGOLOGY

179. CTHRC1 Regulates Collagen Remodeling and Airway Repair

Abraham Wasim Alhamdani, BS; Jazmin Calyeca, PhD; Zakarie Hussein, BS; Lumei Liu, PhD; Tendy Chiang, MD

Educational Objective: This project aims to describe how the absence of CTHRC1 influences airway repair using a preclinical model of airway reconstruction. Objectives: Airway surgery is often complicated by aberrant wound healing, leading to significant postoperative morbidity. Collagen triple helix repeat-containing 1 (CTHRC1) has been implicated in wound healing and is expressed by a subset of fibroblasts following surgery induced stress (SIS). However, CTHRC1's specific role in airway repair remains unclear. This study aims to uncover CTHRC1's influence on key aspects of airway repair, including epithelial cell activation, cartilage damage, and submucosal fibrosis after SIS. Study Design: The study uses an in-vivo preclinical microsurgical model to investigate the effects of CTHRC1 knockout on airway repair. Methods: C57BL/6 mice aged 6-8 weeks expressing full (cWT), partial (cHET), or no (cKO) CTHRC1

underwent orthotopic tracheal transplant. Tracheal tissue was harvested 14 days postoperation and analyzed using μ CT, immunofluorescence (K5/K14/Vimentin/Ki67), Masson's trichrome, and Alcian blue staining. Statistical analysis was performed using ANOVA with Dunnett's or Tukey's post hoc tests ($P < 0.05$). Results: First, submucosal fibroblast proliferation was greater in cWT and cHET mice than in cKO mice, shown by increased vimentin/Ki67 colocalization. Additionally, fibroblast-to-chondrocyte differentiation occurred in all groups but was more extensive in CTHRC1 expressing mice, as indicated by increased area of fibrocartilage structures along the tracheal cartilage in cWT mice and an increased frequency of these structures in cHET mice. However, no significant differences in epithelial activation or proliferation were observed across genotypes. Conclusions: CTHRC1 expression enhances fibroblast proliferation following SIS, suggesting that the gene has a key role in structural remodeling. The post-surgical epithelial response, on the other hand, appears to occur independently of CTHRC1 expression.

180. An Atypical Presentation of a Pediatric Brainstem Glioma as Severe Mixed Sleep Apnea

Anna Bogursky, BA MEd; Catherine Naber, MD; Lindsay Sobin, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the importance of exploring intracranial and brainstem imaging in patients with a high apnea hypopnea index, even in the absence of other neurological symptoms. Objectives: 1) Describe a case of a pediatric brainstem glioma that presented with respiratory compromise; 2) highlight the rare presentation of brainstem glioma manifesting as sleep apnea in the absence of other neurological symptoms. Study Design: Case report. Methods: We report the case of a 6 year old obese full term female with sleep disordered breathing. She had three recent episodes of acute hypoxemic respiratory failure requiring PICU admission. An echocardiogram was normal. An outpatient polysomnogram revealed an apnea hypopnea index of 136 events per hour: 32 obstructive and 387 central. Adenotonsillar hypertrophy was noted on examination, and a tonsillectomy and adenoidectomy (T&A) was scheduled, along with a same day brain MRI to evaluate for brainstem pathology, such as Chiari malformation. Results: Intraoperatively, adenotonsillar hypertrophy was confirmed. MRI revealed an enhancing medullary mass extending to the posterior pons and upper cervical spine, consistent with glioma. Biopsy via suboccipital craniectomy and C1 laminectomy confirmed a low grade glial neuronal neoplasm, deemed unresectable. Neurological examination was unremarkable except for mild, intermittent nystagmus. Additional imaging revealed partial fourth ventricle effacement without hydrocephalus and possible T12-L1 leptomeningeal enhancement. Pathology confirmed BRAF V600E mutant ganglioglioma, WHO grade 1. Pediatric oncology initiated dabrafenib and trametinib. A followup sleep study after T&A and chemotherapy is pending. Conclusions: We present a rare case of a pediatric brainstem glioma in which mixed severe sleep apnea was the only presenting symptom. Sleep apnea was discovered during three PICU admissions over six months for hypoxemic respiratory failure secondary to pneumonia. Unlike typical pediatric brainstem gliomas, which often present with cranial nerve or motor deficits, this patient exhibited no overt neurologic findings. Diagnosis was made via MRI during workup for sleep apnea. This case highlights the importance of broad differential diagnosis and timely neuroimaging in unexplained sleep disordered breathing.

181. Perinatal Risk Factors Associated with Airway Intervention in Fetal Micrognathia

Lisbeth Brooks, BA

Educational Objective: By reviewing this study, readers will be able to identify prenatal and perinatal risk factor--specifically polyhydramnios, low birth weight, and reduced mandibular anterior-posterior diameter--that are associated with the need for airway intervention in neonates with micrognathia. By integrating these findings into clinical practice, providers can improve prenatal counseling, initiate timely otolaryngology consultation, and optimize airway management planning to improve neonatal outcomes. Objectives: Prenatal diagnosis of micrognathia is associated with perinatal airway obstruction. Though several treatment modalities exist, factors predisposing to invasive airway intervention are unknown. We sought to determine prenatal and perinatal risk factors associated with airway intervention in infants diagnosed with micrognathia. Study Design: Retrospective chart review.

Methods: All infants prenatally diagnosed with micrognathia seen in the Fetal Concerns center at a tertiary free-standing children's hospital between 2008-2018 were included. Airway intervention rates in the delivery room, within the first 24 hours of life, and within the hospital were recorded. Prenatal MRIs were reviewed to obtain anterior-posterior diameter of the mandible (APD), inferior facial angle (IFA), biparietal diameter (BPD), jaw index, and tongue base to posterior pharyngeal wall distance (TPD). **Results:** The study included 58 patients, of whom 42 (72%) required airway intervention at some point during hospitalization. Of these, 29 (50%) required airway support in the delivery room, with 8 necessitating escalation of airway therapy within the first 24 hours after birth. In total, 19 patients (33%) required airway intervention within 24 hours of delivery, including 4 who did not initially need delivery room intervention. Tracheostomy was performed in 11 patients (19%), while 27 (47%) were intubated, 7 (13%) underwent tongue-lip adhesion, and 8 (14%) required mandibular distraction osteogenesis. Notably, all cases of maternal polyhydramnios were associated with delivery room intervention (6/6; 100%, $p < 0.001$). Birthweight below 1900 grams was associated with mortality ($p=0.002$). Presence of additional diagnosis beyond micrognathia was not associated with airway intervention during hospitalization. However, a fetal APD less than 2.2 cm was associated with tracheostomy and tongue-lip adhesion during hospitalization. **Conclusions:** Pregnancies complicated by fetal micrognathia--particularly when accompanied by polyhydramnios, reduced fetal mandibular anteroposterior diameter (APD), and low birth weight--should prompt early ENT consultation due to the strong association with the need for airway intervention during hospitalization.

182. Longitudinal Changes in Head and Neck Symptoms in Pediatric Systemic Lupus Erythematosus (SLE)

Marco Antonio Campioli, BA; James Antoni Widner, BS; Lama Mahmoud Abdurrahman, BS; Alexandra Lizbet Martinez, BS; Marietta DeGuzman, MD; Elton Lambert, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the trajectory of head and neck symptom symptoms alongside their correlation with traditional disease markers in pediatric SLE. Participants should also understand the importance of interdisciplinary collaboration with pediatric rheumatologists in SLE care. **Objectives:** Systemic Lupus Erythematosus (SLE) is a chronic autoimmune disease with diverse clinical manifestations. This project examines head and neck symptom progression and biochemical trends in pediatric SLE. **Study Design:** A case series with retrospective review of 176 pediatric patients diagnosed with SLE between 2018 and 2022 at a tertiary care children's hospital rheumatology clinic. **Methods:** Head and neck manifestations, systemic symptoms, and biochemical markers were assessed at baseline, 6, 12, and 24 months. ANOVA analysis was used for continuous variables, while Cochran's Q test evaluated changes in discrete variables. One hundred and nine patients had complete follow up data. **Results:** The mean age was 13.6 ± 3.2 years. Patients were 85% female ($n = 149$), 50% Hispanic/Latino ($n = 88$), and 26% African American ($n = 45$). At presentation, 65% of patients exhibited head and neck symptoms. Facial rash (45%), oral/nasopharyngeal ulcers (28%), and epistaxis (10%) were most common. On Cochran's Q testing, each symptom declined over 24 months ($p < 0.0001$, $p < 0.0001$, $p = 0.004$, respectively). ANA positivity was observed in 85% of patients, and 63% had anti-ds-DNA positivity. Positive anti-dsDNA antibody prevalence declined to 29% by 6 months and was stable through 24 months ($p < 0.0001$, Cochran's Q). C3 and C4 levels increased from baseline, with C4 rising from 9.2 ± 7.7 to 18.1 ± 11.3 mg/dL at 24 months, and C3 from 66.3 ± 34.6 to 99.6 ± 28.7 mg/dL at 24 months ($p < 0.0001$ for both, repeated measures ANOVA). **Conclusions:** ENT manifestations are common in pediatric SLE onset and showed significant improvement following treatment alongside improvement in levels of anti-dsDNA, C3, and C4.

183. Vestibular Findings in Patients with Congenital Cytomegalovirus

Alexander Cherches, MD; Avani Vasireddy, BA; Celia Mizelle, MD; Monica Ogunsusi, MD; Kristal Riska, PhD; Eileen Raynor, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the significance of vestibular sequelae and gross motor delay in patients with congenital cytomegalovirus. **Objectives:** cCMV is the leading cause of neurodevelopmental delay and nongenetic hearing loss in children. Despite the close

relationship between auditory and vestibular organs, there is a lack of literature and recommended management regarding the vestibular sequelae of cCMV. We will describe presence of vestibular symptoms, motor delays, and referral status for infants with cCMV at two major centers. Study Design: Qualitative analysis using retrospective chart review. Methods: 69 patients were identified with positive CMV testing within the first 21 days of life between 2014 to 2022 at two major academic health systems. Retrospective chart review was performed to identify rates and types of motor delay, vestibular dysfunction findings, antiviral therapy, diagnosis of hearing loss, and referrals to vestibular therapy. Results: 11 (15.7% of 69) patients had evidence of vestibular dysfunction and 27 (39.1% of 69) were found to have gross motor delays. There were 50 (72.5%) patients who were symptomatic at birth. All 11 with vestibular dysfunction were symptomatic at birth, along with 24 of those with motor delays. For those asymptomatic at birth, none were found to have vestibular dysfunction, but 3 (18.8% of 16) ultimately developed gross motor delay. None of the patients were referred to vestibular therapy. Conclusions: This study's findings suggest that vestibular dysfunction may be underdiagnosed, under-referred, and ultimately undertreated. Although vestibular assessments may be challenging in pediatric patients, the potential to improve vestibular and motor function suggests that establishing care with vestibular rehabilitation is warranted for infants with cCMV.

184. Longitudinal Breastfeeding Outcomes Post-Frenotomy in Infants with Anterior vs. Posterior Ankyloglossia

Alexandra F. Corbin, BS; Brittani P. Kongala, BA (Presenter); Gaayathri Varavenkataraman, MA; Erin M. Gawel, BS; Katelin R. Keenehan, BS; Michael P. Pizzuto, MD; Michele M. Carr, DDS MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to compare longitudinal breastfeeding outcomes following lingual frenotomy in infants with anterior vs. posterior ankyloglossia and discuss the implications for clinical management. Objectives: Ankyloglossia may cause breastfeeding (BF) difficulties and early weaning. While lingual frenotomy (LF) improves short-term BF in anterior ankyloglossia (AA), outcomes for LF in posterior ankyloglossia (PA) are unknown. This study evaluated BF persistence for LF for PA compared to AA. Study Design: Prospective cohort study. Methods: BF mother-infant (ages 0-3 months) dyads undergoing LF were recruited from 6/23 to 12/24. Coryllos grades 1-2 were classified as AA (control group) and grades 3-4 as PA (experimental group). Mothers rated nipple pain on a 0-10 Visual Analog Scale (VAS), with 0 indicating no pain. VAS scores and BF rates were recorded pre-LF and at 1 day, 1 month, 3 months, and 6 months post-LF. Results: 87 infants (mean age 3.4 weeks, SD=2.9) underwent LF: 49 (56.3%) with AA and 38 (43.7%) with PA. AA infants were younger at LF than PA (mean age 2.8 vs. 4.3 weeks; $P=.014$), and males were more common in the AA group ($N=37$, 75.5% vs. $N=20$, 52.6%; $P=.026$). Race, ethnicity, gestational age, and pre-LF feeding difficulties were similar between groups. Mean nipple pain scores improved over time and were similar between groups at most followups, except at 6 months, where AA dyads had higher mean scores (0.4, SD=0.9) than PA dyads (0.0, SD=0.0; $P=.036$). 59.5% ($N=22$) of AA dyads and 59.4% ($N=19$) of PA dyads BF at 6 months post-LF, with no differences between groups at any followup. Conclusions: Longitudinal BF rates were similar between AA and PA groups post-LF.

185. Identifying High Risk Children Safe for Same Day Discharge After Adenotonsillectomy

Amy Ho, BA; Yann-Fuu Kou, MD; Christopher Liu, MD; Stephen R. Chorney, MD MPH; Romaine F. Johnson, MD MPH

Educational Objective: At the conclusion of this presentation, the participants should be able to determine which high risk patients may be safely discharged the same day after tonsillectomy. Objectives: To identify groups of obese children with severe obstructive sleep apnea (OSA) undergoing tonsillectomy with or without adenoidectomy who have lower risk of perioperative complications requiring overnight admission. Study Design: Retrospective study. Methods: Obese children with severe OSA aged 2-18 who underwent tonsillectomy from 01/21 to 01/24 at a tertiary care academic children's hospital were reviewed. The primary outcome was a composite of perioperative complications including ICU admission, length of stay more than 48 hours, and respiratory support greater than a high flow nasal cannula. Data was analyzed in STATA 18 utilizing a Bayesian logistic regression to assess associations between severe complications and key predictors identified in prior studies. Results: Of 304 children included in

the study, 36 (11.8%) had a perioperative complication. These patients had consistently worse polysomnogram measurements (median AHI 41 vs. 22; median SpO₂ 69.5 vs. 84; TB90 18% vs. 2.4%). The Bayesian model suggested SpO₂ nadir was the most important parameter ($b=-0.668$, 95% CrI [-1.164 - 0.172]). The second most important parameter was class III obesity (BMI% greater than 140% of 95th percentile) with a directional probability of 96.97% and estimated odds ratio of 1.97 (95% CrI - 0.97 - 3.99). TB90 was the weakest predictor with a directional probability of 73.91%. The clinical rules of AHI less than 25 and SpO₂ greater than 85% predicted patients with less than or equal to 2.5% risk of severe events with a negative predictive value of 99.5%. Conclusions: Simple clinical rules (AHI less than 25 and SpO₂ greater than 85%) demonstrated strong negative predictive value in identifying tonsillectomy patients with low perioperative complication risk.

186. Balloon Sinus Dilation for Pediatric Chronic Rhinosinusitis: Updated Meta-Analysis and Sensitivity Evaluation

Amani Kais, MD; Hassan Ramadan, MD;

Educational Objective: Balloon sinus dilation (BSD) is a minimally invasive alternative to endoscopic sinus surgery (ESS) in children with chronic rhinosinusitis (CRS). Objectives: To evaluate the efficacy of BSD in children with CRS by performing an updated meta-analysis by removing overlapping studies, adding recent data, and assesses result robustness through sensitivity analyses. Study Design: Updated meta-analysis and sensitivity evaluation. Methods: A comprehensive literature search was performed to identify studies reporting symptom outcomes using the Sinonasal 5 (SN-5) score after BSD in pediatric CRS patients. Studies with overlapping authors and/or centers were consolidated to reduce duplicate bias. Data were pooled using a random effects model. A sensitivity analysis was conducted by excluding studies with small sample sizes ($n < 25$). Results: Seven studies comprising 184 pediatric patients were included. The pooled mean difference in SN-5 scores following BSD was -3.2 (95% CI: -3.67 to -2.73; $I^2 = 89.5\%$). Sensitivity analysis (4 studies, $n = 147$) showed consistent results (mean difference remained -3.2; 95% CI: -3.67 to -2.73) with markedly reduced heterogeneity ($I^2 = 0.9\%$). BSD was consistently associated with significant symptom improvement across both standalone and adjunctive procedures. Conclusions: Balloon sinus dilation showed significant and clinically meaningful improvement in pediatric CRS. Findings remained robust across sensitivity analyses. Heterogeneity in the full dataset was minimized when smaller studies were excluded. BSD appears to be a safe and effective option in appropriately selected pediatric patients.

187. Decannulation and Mortality Outcomes in Adults with Pediatric Onset Tracheostomy

Douglas Kempthorne, MD; Stephen Chorney, MD; Cynthia Wang, MD; Yann-Fuu Kou, MD; Romaine Johnson, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the rate of decannulation and mortality among patients with pediatric onset tracheostomies who reach adulthood. Objectives: To determine decannulation and mortality rates among pediatric onset tracheostomy patients who reach adulthood with tracheostomy in situ. Study Design: Retrospective cohort study. Methods: We reviewed 541 consecutive tracheostomies performed at a tertiary pediatric center (2006-2022). Ten adult onset procedures (≥ 18 years) were excluded, leaving 531 pediatric onset cases. Outcomes were compared between patients who reached age 18 with active tracheostomy ("adult transition" cohort) versus those who did not. Fine-Gray competing risk regression evaluated time to decannulation with death as competing event, adjusting for age at tracheostomy, neurocognitive disability, and ventilator dependence. Results: Forty patients (7.5%) transitioned to adult care with tracheostomy (median followup 3.2 years). Successful decannulation occurred in 1/40 (2.5%) versus 191/501 (38.1%) in the comparison group ($p < 0.001$). All cause mortality was similar: 7/40 (17.5%) versus 79/501 (15.8%), $p = 0.78$. The adult transition cohort demonstrated higher severe neurocognitive disability (73.7% vs 49.8%, $p = 0.017$) and 22.5% loss to followup. After adjustment, transition to adulthood was associated with 82% lower sub-distribution hazard for successful decannulation (SHR 0.18, 95% CI 0.09-0.35, $p < 0.001$). Independent predictors of decannulation failure included severe neurocognitive disability (SHR 0.27, 95% CI 0.18-0.41, $p < 0.001$) and ventilator dependence

(SHR 0.53, 95% CI 0.39-0.72, $p < 0.001$). Conclusions: Only 2.5% of patients entering adult care with pediatric placed tracheostomy achieve subsequent decannulation, despite mortality comparable to younger patients. High loss to followup suggests healthcare disengagement. These findings support development of formal transition protocols with continued decannulation assessment in adult healthcare settings.

188. Risk of Persistent Opioid Use After Oxycodone Prescribing in Pediatric Tonsillectomy: A TriNetX Database Study

Veenadhari Kollipara, BA; Hera Mukhtar, BS; Kunal A. Koka, BS; F. Jeffrey Lorenz, MD; David Goldenberg, MD FACS; Neerav Goyal, MD MPH FACS

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the increased risk of persistent opioid use in pediatric patients prescribed oxycodone following tonsillectomy and consider non-opioid analgesics as safer alternatives for postoperative pain management. Objectives: Tonsillectomies are commonly performed surgical procedures in pediatric populations, with multimodal pain management. Growing concerns about the opioid epidemic have highlighted significant risks of persistent opioid use following even brief postoperative exposure. This study assessed the association between different postoperative pain management prescriptions and persistent opioid use following pediatric tonsillectomy procedures. Study Design: Retrospective cohort study. Methods: The TriNetX Research Network was queried for pediatric patients who underwent tonsillectomy procedures between 2010 and 2023 with at least six months of follow-up care. Patients with any history of opioid abuse, or opioid use within one year prior to the tonsillectomy procedure were excluded from analysis. Two cohorts were created: patients receiving oxycodone/hydrocodone versus those receiving non-opioid analgesics (control group), which were propensity matched for demographic variables including age and sex. The primary outcome measured was persistent opioid use, defined as new opioid prescriptions filled 1-9 months postoperatively without another surgery requiring anesthesia. Results: We identified 17,931 pediatric patients in the oxycodone/hydrocodone cohort and 167,802 patients in the control cohort. Before propensity score matching (PSM), patients prescribed oxycodone or hydrocodone demonstrated significantly increased persistent opioid use compared to controls (RR 3.52; 95% CI 3.25-3.82, $p < 0.0001$). Similarly, after PSM, oxycodone/hydrocodone prescribed patients showed increased persistent opioid use (RR 3.21, 95% CI 2.79-3.70, $p < 0.0001$). Conclusions: Pediatric patients prescribed oxycodone or hydrocodone were significantly more likely to fill additional opioid prescriptions following tonsillectomy compared to those receiving non-opioid analgesics, suggesting important implications for postoperative pain management protocols.

189. The Role of Posterior Ankyloglossia in Pediatric Obstructive Sleep Apnea: A Pilot Study

Brittani P. Kongala, BA; Alexandra F. Corbin, BS; Gaayathri Varavenkataraman, MA; Tony Han, BS; Amanda G. Baanante, MS; Michele M. Carr, DDS MD PhD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the prevalence of posterior ankyloglossia in children with obstructive sleep apnea and evaluate its potential contribution to airway obstruction based on sleep endoscopy findings. Objectives: The role of posterior ankyloglossia (PA) in obstructive sleep apnea (OSA) in children is unclear. This study evaluated the prevalence of PA in children with OSA and compared sleep endoscopy findings in children with PA versus those without PA. Study Design: Retrospective cohort. Methods: Children diagnosed with OSA via polysomnography (PSG) who underwent drug-induced sleep endoscopy (DISE) between 10/1/2024 and 1/20/2025 were included. DISE eligibility required either 1+ tonsils or prior surgery for OSA. During DISE, patients were assessed for PA, defined as Coryllos grade 3 or 4. Collected data included demographics, apnea-hypopnea index (AHI), nadir SpO₂ from PSG, presence of PA and associated Coryllos grade, and DISE findings. Results: 17 children (mean age 5.4 years, SD=3.3) were included. Mean BMI was 18.3 kg/m² (SD=4.7), and mean weight percentile was 59.3% (SD=28.8). There were 13 males (76.5%) and 4 females (23.5%). PA was present in 9 patients (52.9%), with 2 (22.2%) graded as Coryllos 3 and 7 (77.8%) as Coryllos 4. Mean AHI was 11.1 (SD=8.6), and mean nadir SpO₂ was 87.9% (SD=4.3).

Lingual tonsil obstruction was common (16/17, 94%). Retrolingual airway obstruction occurred in 50% (8/17). There were no differences in age, gender, BMI, weight percentile, DISE results, or PSG findings between children with PA and those without (p-value greater than .05). Conclusions: PA is present in children with OSA but its clinical significance in airway obstruction is unclear and requires further investigation.

190. Stepping Out of the Comfort Zone, Staying Inside the Capsule: A Mixed Methods Analysis of a Department Wide Transition from Total to Intracapsular Tonsillectomy

Erin I. Ling, BS BA; Kelly Giroux, CPNP-PC; Ada Sher, MD; Graham Pingree, MD; Prasanth Pattisapu, MD MPH; Tendy Chiang, MD FACS

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how our department successfully transitioned from total to intracapsular tonsillectomy in terms of timeline and physician motivators, as well as how this transition yielded better postoperative outcomes. Objectives: Changing surgical technique can be challenging, especially when the status quo is a surgery as common as tonsillectomy. Intracapsular tonsillectomy (IT) reduces postoperative pain and hemorrhage when compared total tonsillectomy (TT). Our mixed methods study describes a transition from TT to IT at a tertiary referral children's hospital in terms of surgeon specific motivators, timeline, and postoperative outcomes. Study Design: Quantitatively, we conducted a retrospective cohort study via chart review of patients aged 0 to 19 undergoing tonsillectomy between January 1, 2017, and December 31, 2022. We then conducted semistructured interviews to qualitatively evaluate surgeon specific motivators for transitioning to IT. Methods: Charts were reviewed for 30 day rates of return to the emergency department (ED) or readmission. We conducted eight interviews with otolaryngologists from our institution. These interviews were analyzed via blind-open coding followed by closed coding to determine key qualitative themes. Results: Over six years, 13,899 patients underwent tonsillectomy. Our department transitioned from only 2.3% IT in 2017 to 80.6% IT in 2022. While 10% (n = 995) of TT patients returned to the ED within 30 days of tonsillectomy, only 3.1% (n = 133) of IT patients returned. Five themes were identified in the qualitative analysis, grouped into two motivating factors (data transparency and individual surgeon experience) and three transition concerns (interaction with patient families, training and skill acquisition, and impact on partners). Conclusions: This study highlights the prominent agents of surgical change within our department and how seeking improvement in even one of the most common pediatric surgeries can yield better postoperative outcomes.

191. Analyzing the Incidence of Pediatric iGAS Infections During the 2022-23 Flu Season

Alexsandr Lukyanchuk, BS; Nikita Gupta, MD; Anthony A. Mangino, PhD

Educational Objective: Invasive Group A Streptococcus (iGAS) occurs when acute pharyngitis caused by streptococcus pyogenes (GAS) spreads beyond the pharynx into adjacent tissue, causing complications such as peritonsillar and retropharyngeal abscesses, lymphangitis, cellulitis, mastoiditis, sinusitis, and orbital abscess. In December of 2022, our local department of public health issued a health alert that warned of a possible increase in both GAS and iGAS infection rates and a possible increased rate of complications from iGAS which could result in hospitalization or death. The goal of this study is to investigate if there was a significant increase in iGAS and its various complications within our local academic institute during the 2022-23 flu season. This study analyzed the incidence of charted ICD & CPT codes related to the sequelae of iGAS in order to approximate a potentially more aggressive disease process, which could ultimately reflect an increase in iGAS. Concern regarding a surge in infectious diseases post the COVID-19 pandemic may be attributed to an increased incidence and severity of invasive organisms as identified in this health alert. Objectives: The goal of this study was to investigate if there was a significant increase in iGAS within our academic institute's healthcare system during the 2022-23 flu season to potentially corroborate the concerns raised by the local department of public health's advisory. Study Design: This study is a retrospective chart review including all pediatric inpatients that presented to our single academic institute from July 1st, 2021, to July 1st, 2023. Methods: The patient encounters analyzed were separated into two cohorts representing the 2021-22 flu season and the 2022-23 flu season. Chart data related to iGAS was collected and analyzed using unadjusted mixed effects

regression models to account for repeat patient encounters. Results: This study found that 66 pediatric patients were admitted to the hospital in the 2022-23 flu season as compared to 31 patients in the 2021-22 season. There was a statistically significant increase in the diagnosis of GAS in the 2022-23 cohort as compared to the 2021-22 cohort (27.27% v. 9.67%, $p = 0.039$). There was also a significant increase in the incidence of bacteremia ($p = 0.046$) and orbital explorations ($p = 0.011$) performed during 2022-23 as compared to 2021-22. Conclusions: The increase in GAS diagnoses in the 2022-23 cohort reflects the proposed increase of GAS infections noted in the local health department's health alert, potentially contributing to the post COVID pandemic surge in infections. The goal is for these findings to bring awareness to this epidemiological issue and increase the vigilance of healthcare workers when treating pediatric patients.

192. External Validation of NSQIP Pediatric Risk Predictions for Open Airway Reconstruction

Basir S. Mansoor, BS; John Fakhry, BS; Matthew Zhang, BS; Varun Pasapula, BS; Romaine F. Johnson, MD MPH

Educational Objective: At the conclusion of this presentation, the participants should be able to assess the limitations of the American College of Surgeons National Surgical Quality Improvement Program-Pediatric (ACS-NSQIP-P) risk calculator in predicting complications following pediatric open airway reconstruction and recognize the need for improved risk stratification tools in high risk pediatric surgical populations. Objectives: Pediatric otolaryngologists utilize the ACS-NSQIP pediatric risk calculator for preoperative counseling and surgical planning in airway reconstruction cases. However, the accuracy of NSQIP-P predictions in this specialized population has not been validated. We aimed to evaluate whether NSQIP-P accurately predicts complications after pediatric open airway reconstruction surgery. Study Design: Retrospective cohort study. Methods: We conducted a retrospective cohort study of consecutive open airway reconstruction procedures at a tertiary children's hospital (2010-2021). Patient data was entered into the NSQIP-P risk calculator to generate predicted complication risks. Model performance was assessed through calibration (observed to expected ratios), discrimination (area under ROC curve), and clinical utility metrics. Length of stay was analyzed using Weibull survival regression. Results: Among 138 procedures (mean age 4.6 years), complications occurred in 33% of cases (45/138). NSQIP-P underestimated risk: any complication O/E ratio 2.59 (95% CI: 1.93-3.47), and pneumonia O/E ratio 3.67 (95% CI: 2.18-6.20), both $p < 0.001$. Complex procedures (tracheal resection/tracheoplasty) had 46% complication rates versus 29% for laryngotracheal reconstruction. Discrimination was acceptable (AUC 0.70 for any complication and 0.75 for pneumonia) but sensitivity was poor (18-21%) using "above average" thresholds. Complications tripled length of stay (hazard ratio 0.32, $p < 0.001$), with pneumonia patients averaging 58 day hospitalizations versus 11 days without complications. Conclusions: NSQIP-P systematically underestimates complication risk in pediatric airway surgery by 2.6-fold for any complication and 4-fold for pneumonia. While the calculator offers modest risk stratification, its poor calibration and low sensitivity limit its effectiveness for accurate counseling and institutional planning. Many high risk patients are not identified using current thresholds, highlighting the need for improved, procedure-specific risk prediction tools in this population.

193. Outcomes and Management of Pediatric Acute Mastoiditis with and without Central Venous Thrombosis: A Retrospective Study from a Freestanding Tertiary Care Pediatric Center

Juliana Helen Morcos, BS; Rushi Vekariya, BS; Ariana Johnson, BS; Timothy Maul, CCP FPP PhD; Adriana Cadilla, MD; Cedric Pritchett, MD MPH FAAP FACS

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize differences in the clinical presentation, surgical intervention, and hospital time course between pediatric patients with and without central venous thrombosis and apply this knowledge to improve the identification and management of vascular complications. Objectives: To characterize the clinical profile of patients with acute mastoiditis complicated by central venous thrombosis (CVT) and compare the presenting characteristics, surgical interventions, and clinical outcomes between patients with and without CVT. Study Design: Retrospective cohort study of pediatric patients diagnosed with acute mastoiditis at a freestanding tertiary care pediatric hospital between 2014 and 2024. Methods:

Demographics and clinical data were collected from the electronic medical record on patients 0-18 years of age with acute mastoiditis (ICD-10: H70.0; ICD-9: 383). CVT (ICD-10: G08) was confirmed by radiographic imaging. Statistical analysis used Fisher's Exact Test or Mann-Whitney U. Results: Seventy-eight patients were included: 19 with thrombosis and 59 without. Thrombosis involved either the sigmoid sinus alone (n=9), sigmoid sinus with internal jugular vein (n=8), or sigmoid sinus with internal jugular vein and transverse sinus (n=2). Right sided involvement predominated (73.7%). On admission, patients with thrombosis were significantly less likely to have postauricular swelling (52.6% vs. 79.7%, $p=0.035$). Patients with thrombosis were significantly more likely to undergo localized craniectomy (26.3% vs. 0%, p less than 0.001) and mastoidectomy (78.9% vs. 42.1%, $p=0.011$) and had significantly longer hospital stays (183.5 hours vs. 69.5 hours, p less than 0.001). No significant differences were found in fever, pathogen type, or inflammatory markers (CRP, WBC). Conclusions: 24.4% of pediatric mastoiditis cases were complicated by CVT, requiring more invasive interventions and longer hospitalizations. Despite greater severity, inflammatory markers and pathogens were similar between groups. This highlights the need for early recognition, as typical lab values may not predict CVT. Further research is needed to identify reliable risk factors and improve outcomes.

194. Temporal Trends in Obstructive Sleep Apnea and Obesity Among Children Undergoing Adenotonsillectomy
Varun Pasapula, BS; Zoe Zhang, BS; Austin Bridges, BS; Romaine F. Johnson, MD MPH

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize changing trends in OSA severity and obesity among pediatric adenotonsillectomy patients and discuss implications for clinical management. Objectives: To evaluate temporal trends in obstructive sleep apnea (OSA) severity and obesity among pediatric adenotonsillectomy patients. Study Design: Retrospective cohort study of pediatric adenotonsillectomy patients from 2016 to 2024. Methods: Retrospective analysis of 157 consecutive adenotonsillectomy cases across three periods: 2016-2018 (n=50), 2019-2021 (n=61), and 2022-2024 (n=46). Results: Mean age at surgery was similar across periods (7.4, 7.3, 7.0 years; $p=0.87$) with consistent sex distribution (52% male overall). Severe obesity (BMI $\geq 120\%$ of 95th percentile) more than doubled from 10% in Period 1 to 21% and 24% in Periods 2 and 3 (absolute increase 11-14 percentage points). Overall obesity increased non-significantly from 28% to 43% to 35% ($p=0.275$). Among patients with polysomnography (n=63), extreme OSA (AHI ≥ 20) had an absolute risk increase of 41 percentage points ($p=0.006$) during the study period. Median AHI tripled from 4.5 to 13.6 events/hour between periods. Severe OSA (AHI ≥ 10) prevalence increased 2.5-fold from 22% to 55%. The co-occurrence of extreme OSA and severe obesity, absent in Period 1, affected 20% of tested patients in later periods. Conclusions: Pediatric adenotonsillectomy candidates demonstrated marked increases in disease severity, with extreme OSA emerging in 41% of tested patients and severe obesity prevalence doubling.

195. Elevated Incidence and Illness Severity of Meningitis in Children with Cochlear Implants
Macoy Conrad Pitts, BA MS; Nicolas Poupore, MD; David R. White, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the elevated risk and severity of meningitis in children with cochlear implants (CI) and recognize the importance of surveillance and vaccination. Objectives: To evaluate the incidence and severity of meningitis among pediatric CI recipients using a national inpatient database. Study Design: A retrospective cohort study using the 2016, 2019, and 2022 Kids' Inpatient Databases (KID) to analyze inpatient pediatric admissions for meningitis and CI. Methods: Children with meningitis and CI were identified. Neonates (≤ 28 days old) and patients with rare and nonspecific meningitis codes with minimal case counts were excluded from analysis. Statistical analysis included chi-square and independent t-tests. Results: 17,227 weighted cases of meningitis and 2,378 CI recipients were included. 33 patients had both diagnoses. Among these, children with CI and bacterial meningitis (e.g., *H. influenzae*, *S. pneumoniae*) were significantly younger than children with other meningitis etiologies (mean age 2.9 vs. 11.1 years, $p<0.05$). Bacterial meningitis was significantly more common among CI recipients ($p<0.001$). The incidence of meningitis among CI recipients was significantly higher than in the general population across all years and overall ($p<0.05$). CI patients had

a greater illness severity (mean 2.80 vs. 2.25, $p < .05$). No significant differences were observed by race, sex, hospital region, or income. Vaccination status was not consistently documented in KID to evaluate an effect. Conclusions: Children with cochlear implants are at increased risk of meningitis and experience more severe disease. Enhanced surveillance, timely vaccination, and family education are recommended to mitigate this risk. Further prospective studies are encouraged to assess vaccine impact and guide preventive strategies.

196. Increased Sinusitis Complications Following the COVID-19 Pandemic

Macoy Conrad Pitts, BA MS; Nicolas Poupore, MD; David R. White, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the increased risk of sinusitis complications in children since the COVID-19 pandemic. Objectives: To assess whether the COVID-19 pandemic influenced the incidence and severity of sinusitis complications in children. Study Design: A retrospective cohort study of pediatric sinusitis admissions using the HCUP 2016, 2019, and 2022 Kids' Inpatient Databases (KID). Methods: Hospitalizations with sinusitis as the primary diagnosis were identified from the database. Complications of sinusitis--such as intracranial abscess, cavernous sinus thrombosis, periorbital cellulitis, and number of sinus surgeries--were compared across pre- and post-pandemic years. Chi-square and independent t-tests were used to analyze categorical and continuous variables, respectively. A multivariate analysis of variance (MANOVA) assessed differences in mortality risk, severity of illness, length of stay, and number of procedures. Results: 4,916 weighted cases were included. Of these, 229 patients had intracranial abscesses with a significant increase post-pandemic (3.6% vs. 7.0%, $p < 0.01$). The proportion of patients requiring sinus surgery rose from 28.4% to 38.2%. Post-pandemic patients had a 3.1-fold higher risk of periorbital cellulitis compared to pre-pandemic patients. Mortality risk, severity of illness, length of stay, and number of procedures during admission remained significantly higher even after excluding patients with a COVID-19 diagnosis or history (MANOVA, Wilks' Lambda = 0.989, $p < 0.01$). Conclusions: Children hospitalized for sinusitis in the post-pandemic era are associated with more severe complications and surgical procedures. The persistence of these differences after excluding COVID-19 positive patients suggests that broader pandemic related factors, such as delayed care, reduced healthcare access, or shifts in microbial biodiversity, may be contributing and highlight the need for further investigation.

197. Hearing and Middle Ear Outcomes in Children/Infants with Bronchopulmonary Dysplasia

Natalie Quinn, BS; Olivia Chan, BS; Holly Gerth, AuD; Isaac Kistler, MS; Ursula Findlen, PhD; Tendy Chiang, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to provide improved anticipatory guidance to parents of children with bronchopulmonary dysplasia (BPD) regarding middle ear involvement and expected hearing status regardless of newborn hearing screening outcome. Objectives: To assess the prevalence of middle ear involvement and hearing status among children with bronchopulmonary dysplasia (BPD). Study Design: Single-institution, retrospective cohort study. Methods: Patients 0-8 years admitted to our tertiary care NICU, from 2017-2022, diagnosed with BPD were retrospectively reviewed. Patients were grouped by Jensen Grade BPD classifications: Grade I (less than or equal to 2L nasal cannula), Grade II (greater than 2L nasal cannula, CPAP, or BiPAP), and Grade III (invasive ventilation). Outcome variables included newborn hearing screening, audiology testing, presence of middle ear pathology, and time to tympanostomy tube placement. Descriptive statistics and Fisher's exact test assessed differences. Results: Of 707 records, 620 met inclusion criteria with equal gender distribution, median gestational age of 28 weeks (IQR 25-28), and birth weight of 832 g (638-1,125 g). The cohort included 170 Grade I patients (24%), 324 Grade II (46%), and 126 Grade III (18%). NBHS results varied by Grade ($P < 0.001$), with Grade III observed to have higher rates of NBHS failure or deferral for diagnostic audiology, as did subsequent diagnostic results ($P < 0.001$), with Grade III observed to have more frequent sensorineural or mixed hearing loss. Chronic middle ear pathology was observed in 34% of Grade I, 27% of Grade II, and 29% of Grade III; for which surgical management was performed in 22%, 19%, and 25%, respectively. Time to tympanostomy placement

from 36 weeks gestational age was longer in Grade I patients (23 weeks) compared to Grades II and III (17 and 18 weeks, respectively). Conclusions: Among 620 infants with BPD, those classified as Grade III had higher rates of NBHS deferral or failure and more frequently presented with sensorineural or mixed hearing loss upon diagnostic evaluation. While the prevalence of middle ear pathology and surgical intervention was similar across grades, infants with Grade I experienced a longer time to ear tube placement compared to Grades II and III.

198. Impact of Social Vulnerability on Diagnosis, Treatment, and Outcomes in Pediatric Obstructive Sleep Apnea

Harrison P. Smith, BA; Gemma Toogood, BS; Govind Bindra, MS; Boston Andersen, BS; Marion Boyd Gillespie, MD MSc; Anthony Sheyn, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to analyze the discrepancy between care process measures and health outcomes among different social vulnerability strata in pediatric OSA to guide future investigation into underlying care gaps. Objectives: This presentation seeks to analyze the link between social vulnerability factors and OSA in the pediatric population to enhance care for patients from various demographic backgrounds while also looking at pediatric treatment disparities. Study Design: Retrospective cohort analysis was conducted using the Enterprise Data Warehouse database containing pediatric patient data from 2014-2024. Methods: Queries included OSA relevant ICD-10 and CPT codes for ages 0-18. Dataset variables included demographics, the social vulnerability index (SVI), polysomnography metrics, medical and surgical treatments, complications, time from OSA diagnosis to complication onset, and comorbidities (T2DM). Results: The query resulted in 5,735 patients. Mean time from OSA diagnosis to CPAP initiation in the high risk SVI quartile was 189 days with no significant difference between groups. Tonsillectomy treatment was performed significantly more in high risk groups. Mean time for polysomnography prior to OSA diagnosis was 71 days with no significant differences between groups. T2DM comorbidity was proportionally higher in high risk SVI groups compared to low and medium high groups ($p < 0.05$). However, no significant difference in the time of T2DM onset was seen. No proportional differences were seen between SVI groups with heart failure, metabolic syndrome, fatty liver disease, and cerebral infarction. Conclusions: Increased comorbidities in high SVI groups highlight pediatric care gaps, emphasizing the need for OSA management with more specific interventions for better control of comorbid conditions in these high risk patient groups. The lack of differences between SVI groups for time to treatment initiation and diagnosis indicates further investigation for underlying causes.

199. Comparing CNN and Vision Transformer Architectures for Pediatric Otitis Media Classification: Clinical Error Pattern Analysis

Sruthi Surapaneni, BS; Nikhil Rangarajan, MS; Nandini Govil, MD; Deepak Kumar Mehta, MBBS; Andrew Scott, MD; Courtney Hill, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize how differences in AI model architecture, specifically between CNNs and Vision Transformers, can influence diagnostic performance in otoscopic image classification, and understand the importance of aligning model choice with the specific clinical task, such as distinguishing AOM from OME. Objectives: Misdiagnosing pediatric otitis media remains a common challenge for primary care providers. Effective artificial intelligence (AI) decision support tools should minimize such errors to be clinically useful. To assess how architectural differences affect performance, this study compares a convolutional neural network (CNN) and a vision transformer in classifying otoscopic images. Study Design: A prospective study collected ear images from children aged 6 months to 10 years undergoing myringotomy with tube placement at four U.S. pediatric hospitals. Methods: Images were captured using consumer grade digital otoscopes and labeled based on intraoperative findings. A CNN and a transformer were trained to classify AOM, OME, and no effusion. Performance was evaluated using accuracy and f-1 score. Results: A total of 537 images from 219 patients were labeled as AOM (73), OME (190), or no effusion (274). The transformer achieved 72.2% accuracy with F1 scores of 0.25, 0.72, and 0.79, respectively. CNN achieved 75.9.0% with F1 scores of 0.63, 0.71,

and 0.82. A two proportion z-test showed no significant difference in accuracy (two tailed $p = 0.66$). The transformer misclassified 2 of 19 OME cases (10.5%) as AOM and the CNN misclassified 1 of 16 (6.3%). Conclusions: Both models had similar overall accuracy, however their misclassification patterns offer insight into clinical relevance. Prior work shows pediatrician misclassification of OME as AOM ranging from 7% to over 50% across multiple vignettes which can lead to inappropriate antibiotic prescription. This study's CNN had a lower rate of this misclassification compared to the transformer and pediatricians. Further evaluation using model explainability techniques may clarify underlying architectural tendencies, such as transformers capturing global context and subtle effusion patterns, and CNNs focusing on local features like tympanic membrane bulging, typical of AOM. Though based on a single dataset, these findings highlight the importance of considering both overall performance and clinically relevant error patterns when modeling AI.

200. Pediatric Granular Cell Tumor of the Trachea with Near Complete Airway Obstruction: A Case Report

Edward Ryan Talatala, MD; Deidre Larrier, MD; Julina Ongkasuwan, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the pathophysiology of granular cell tumors and patient presentation when they develop in the airway. Objectives: To characterize clinical presentation, diagnostic evaluation, surgical management, and followup of pediatric airway granular cell tumors (GCT). Study Design: Case report and literature review. Methods: A comprehensive literature search of pediatric airway GCT cases was performed, focusing on clinical history, imaging, histopathology, surgical technique, margin status, and recurrence. Results: Patient is a 6 year old female who presented to pediatric otolaryngology clinic as a referral for sleep disorder breathing. Symptoms included snoring, gasping for air, orthopnea, and wheezing. Enlarged tonsils were noted on exam, and she was scheduled for adenotonsillectomy. On day of surgery, she was noted to have biphasic stridor, and operative plan was changed to suspension laryngoscopy and bronchoscopy for evaluation of airway. A large upper tracheal, intraluminal mass was found causing about 90% occlusion of airway. Biopsy was sent and the mass was debrided. Pathology revealed granular cell tumor. She returned 2 months later for surveillance laryngoscopy and bronchoscopy, revealing a small amount of remnant tissue, which was subsequently debrided. Surveillance laryngoscopy and bronchoscopy 3 months later showed no evidence of disease. Conclusions: Pediatric airway GCTs are rare benign tumors that may present with airway obstruction, recurrent respiratory symptoms, or voice changes. Accurate diagnosis relies on imaging and immunohistochemical confirmation. Initial debulking can stabilize airway status, but definitive resection is the cornerstone of management. However, finding negative margins is difficult when GCTs present in the airway. Given the potential for recurrence, long-term endoscopic surveillance is essential.

201. Post-Viral Dysphagia Following RSV Infection vs Other Viral URIs in Children Under 3

Mukta P. Vibhute, BS; Kenny Nguyen, MD MED; Adrian Williamson IV, MD; Gresham T. Richter, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to consider dysphagia as a potential post-viral concern following respiratory syncytial virus (RSV) infection in young children. Objectives: To evaluate the association between RSV and subsequent dysphagia diagnoses in children under 3 years compared to other viral upper respiratory infections (URIs). Study Design: A retrospective cohort study using a national multi-institutional research database (TriNetX). Methods: Children aged 0-3 diagnosed with RSV or non-RSV viral URIs were identified using ICD-10 codes. Cohorts were 1:1 propensity matched by age, sex, and comorbidities. Risk ratios (RR), hazard ratios (HR), and Kaplan-Meier survival analysis assessed dysphagia incidence within one year. Patients with prior or concurrent dysphagia diagnoses were excluded. Results: A total of 157,855 RSV and 158,341 non-RSV viral URI patients met inclusion criteria. Dysphagia was newly diagnosed in 846 (0.54%) of RSV patients compared to 670 (0.42%) non-RSV patients (RR 1.27, 95% CI: 1.15-1.40; HR 1.71, 95% CI: 1.55-1.90; p less than 0.0001). Speech or swallow evaluations occurring between 1 day to 1 year of URI diagnosis were observed in 1,261 (0.80%) RSV patients and 812 (0.51%) non-RSV patients (RR 1.56, 95% CI: 1.43-1.70; HR 2.04, 95% CI: 1.86-2.24; p less than 0.0001).

Conclusions: RSV infection in children under 3 years was associated with a higher rate of dysphagia diagnoses and swallow related evaluations compared to other viral URIs. These findings suggest a potential post-viral complication worth clinical consideration. Further research is needed to clarify long-term outcomes and to identify children who may benefit from closer monitoring.

202. Transoral Robotic Surgery Versus Traditional Lingual Tonsillectomy for Pediatric Persistent Obstructive Sleep Apnea Post-Adenotonsillectomy: A Systematic Review and Meta-Analysis

Christina Zhu, BS; Mona Dabbas, BS; Emily Clementi, BA; Samay Sampat, BS; Kristen Mathew, BS; Earl Harley, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to evaluate the relative effectiveness and safety of transoral robotic surgery (TORS) assisted versus traditional lingual tonsillectomy in children with persistent obstructive sleep apnea (OSA) following tonsillectomy and adenoidectomy (T&A). Objectives: This study aims to compare postoperative outcomes of TORS and traditional lingual tonsillectomy in pediatric patients with persistent OSA following T&A. Study Design: Systematic review and meta-analysis. Methods: A systematic search of Ovid Medline, Embase, Cochrane CENTRAL, and Web of Science was conducted through February 2025. Included studies involved patients under 18 with persistent OSA post-T&A who underwent either TORS or traditional lingual tonsillectomy. Outcomes assessed included postoperative apnea hypopnea index (AHI) reduction, bleeding, and non-bleeding complications. Results: Sixteen studies involving 470 pediatric patients were included: 25 underwent TORS and 445 underwent traditional lingual tonsillectomy. Postoperative dysphagia was significantly more frequent in the TORS group (32%) than in the traditional group (1.3%; $p = 0.00012$). Postoperative infection was also higher with TORS (16%) compared to traditional (1.3%; $\chi^2 = 14.88$, $p = 0.001$). Meta-analysis showed a significantly higher rate of postoperative bleeding in the TORS group (12%, 95% CI: 4%-31%) versus the traditional group (3%, 95% CI: 2%-6%; $\chi^2 = 3.98$, $p = 0.046$). Reduction in AHI was greater in the TORS group (mean: 16.20 events/h, 95% CI: 9.01-23.39) compared to traditional (mean: 3.64 events/h, 95% CI: 2.03-5.25), with a statistically significant subgroup difference ($\chi^2 = 11.41$, $p = 0.0007$) indicating improved symptom resolution with TORS. No significant differences were observed between techniques in rates of postoperative dysphonia, airway obstruction, or bleeding requiring surgical intervention. Conclusions: TORS may offer greater improvements in pediatric patients with persistent OSA following T&A, but its association with higher rates of postoperative dysphagia, infection, and bleeding warrants careful surgical decision making and further investigation in larger cohorts to refine patient selection and optimize outcomes.

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Exhibit Hall Hours

Thursday, January 22	9:30 am - 5:30 pm
Friday, January 23	7:00 am - 5:00 pm, 6:15 - 7:45 pm (open during Poster Reception)
Saturday, January 24	7:30 am - 10:30 am

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