TRIOLOGICAL SOCIETY

125TH ANNUAL MEETING AT COSM

Hynes Convention Center / Sheraton Boston
Boston, Massachusetts

May 4-5, 2023

The Triological Society
UPHOLDING THE NOBLE LEGACY

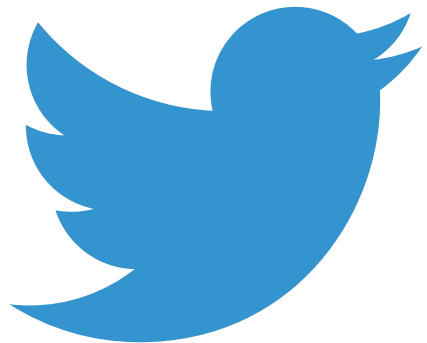**Follow the latest meeting buzz on social media!**

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The Triological Society

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May 4-5, 2023 • Hynes Convention Center/ Sheraton Boston • Boston, MA

Triological Society's Mission Statement and Goals

The American Laryngological, Rhinological and Otological Society, Inc., aka The Triological Society, was founded in 1895 in New York, New York. In the more than 120 years 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 encourage and assist otolaryngologist-head and neck surgeons and other health care professionals to develop, maintain, and enhance their knowledge and skills in their pursuit of improved patient care through education, research, and fellowship.

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.

In 2022, the Triological Society awarded:
- $400,000 in grant funds to otolaryngologist-head and neck surgeons to 1) help facilitate research career development in young otolaryngologists; and 2) further support otolaryngology clinical scientists with new or existing K08/K23 awards;
- $147,000 to residents, medical students, and Fellows who presented award winning posters at the Society's meetings.

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.
- Distinguish healthy and unhealthy reactions to negative patient outcomes in order to minimize physician and other healthcare worker dissatisfaction and burnout.
- 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, publishers, 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. Requests may be made by sending a self-addressed envelope to: Triological Society ● 1000 Jorie Blvd Suite 385 ● Oak Brook, IL 60523.

Continuing Medical Education Credit Information

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

Additional CME Information

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.

MESSAGE FROM THE PRESIDENT
RALPH B. METSON, MD FACS

It is with great pleasure that I welcome you to the 125th Anniversary Annual Meeting of the Triological Society in my hometown, historic Boston. This city is the perfect venue to celebrate such an occasion, as we reflect upon the Society's past accomplishments and plan for our future.

A highlight of this year's program will be the Joseph H. Ogura Lecture delivered by Rochelle Walensky, MD, Director of the CDC. We are honored that Dr. Walensky, who has spearheaded our nation's response to the COVID-19 pandemic, will join us to share her unique insights and perspectives. Her presentation will be open to all COSM attendees.

The Triological Society is unique amongst our fellow COSM organizations in that it offers a program which includes the entire spectrum of our diverse specialty. Dr. Sonya Malekzadeh, Program Committee Chair, and her Program Committee have organized an exciting and diverse agenda of presentations, panels, and interactive activities. One such activity which is new to this year's meeting is Speed Networking, where young otolaryngologists and trainees will have the opportunity to meet face-to-face in rotating 15-minute sessions with senior leaders of our specialty. Hot topics for discussion in these informal, interactive groups include career trajectory, advocacy, research opportunities, DEI challenges, and work/life balance.

I would like to express my appreciation to members of the Triological Society whose guidance and support have made my tenure as President particularly rewarding and enjoyable. Special thanks to members of the Triological Council, guided by our Executive VP, Dr. Myles Pensak, and the administrative staff, led by Beth Faubel. This year has been the highlight of my academic career.

In the 125 years since its first meeting, the Triological Society has represented the best and brightest in academic and clinical otolaryngology generation after generation. Let us be proud of our heritage and look forward to the future as we continue our Noble Legacy.

TRIOLOGICAL SOCIETY HONOREES

JOSEPH H. OGURA, MD LECTURER
Rochelle P. Walensky, MD MPH

Rochelle P. Walensky, MD, MPH, is the Director of the Centers for Disease Control and Prevention and the Administrator of the Agency for Toxic Substances and Disease Registry. She is an influential scholar whose pioneering research has helped advance the national and global response to HIV/AIDS. Dr. Walensky is also a well-respected expert on the value of testing and treatment of deadly viruses. Dr. Walensky served as Chief of the Division of Infectious Diseases at Massachusetts General Hospital from 2017-2020 and Professor of Medicine at Harvard Medical School from 2012-2020. She served on the front line of the COVID-19 pandemic and conducted research on vaccine delivery and strategies to reach underserved communities. Dr. Walensky is recognized internationally for her work to improve HIV screening and care in South Africa and nationally for motivating health policy and informing clinical trial design and evaluation in a variety of settings. She is a past Chair of the Office of AIDS Research Advisory Council at the National Institutes of Health, Chair-elect of the HIV Medical Association, and previously served as an advisor to both the World Health Organization and the Joint United Nations Programme on HIV/AIDS. Originally from Maryland, Dr. Walensky received her Bachelor of Arts from Washington University in St. Louis, her Doctor of Medicine from the Johns Hopkins School of Medicine, and her Master of Public Health from the Harvard School of Public Health.

PRESIDENTIAL CITATIONS
Gerald B. Healy, MD FACS

Gerald B. Healy, M.D. is the emeritus Surgeon-in-Chief and the emeritus Gerald B. Healy Chair in Otolaryngology at Children's Hospital Boston. He also served as a Trustee of the hospital. Dr. Healy is currently Professor (Emeritus) of Otolaryngology-Head & Neck Surgery at Harvard Medical School.

Dr. Healy is a member of numerous honorary societies, including the American Academy of Otolaryngology-Head and Neck Surgery, American College of Surgeons, the Triological Society, the American Laryngological Association, the American Society of Pediatric Otolaryngology, the American Society of Head and Neck Surgery and the American Surgical Association. He has served as President of the American Society of Pediatric Otolaryngology, the American Bronchoesophageal Association, and the Triological Society (the leading academic society in the specialty of Otolaryngology-Head and Neck Surgery). He has served as Secretary and President of the American Laryngological Association. He is an Honorary Fellow of the Royal College of Surgeons of Ireland and the Royal College of Surgeons of England. He has served as a Chairman of the Board of Regents of the American College of Surgeons and is a past-President of the American College of Surgeons. He was the first Otolaryngologist to be elected President of the College. Currently he is a Senior Fellow at the Institute for Health Care Improvement.

In 1986, Dr. Healy was elected to the Board of Directors of the American Board of Otolaryngology and served as its Executive Vice-President for six years. He has also served as a Director of the American Board of Emergency Medicine. In 2011 he was selected as a Trustee of Boys Town in Omaha, Nebraska.

He now brings a vast experience to bear as a consultant to institutions and health systems facing all the pressures of 21st Century medicine as well as hospitals facing critical safety issues in their operating rooms. Dr. Healy lectures nationally and internationally on surgical education and the critical elements of patient safety, as well as professionalism in the 21st Century. He is a founding partner of ORDx+Rx: Solutions for Surgical Safety, a consulting group dedicated to improving operating room safety.

PRESIDENTIAL CITATIONS
Mark A. Varvares, MD FACS

Dr. Mark Varvares serves as the Chair of Otolaryngology-Head and Neck Surgery at the Massachusetts Eye and Ear and Harvard Medical School and as a clinically active surgeon, specializing in head and neck ablative and reconstructive surgery.

Dr. Varvares first joined the full-time faculty of Mass Eye and Ear/Harvard Medical School in 1992. In 2003, he accepted a Department Chairmanship at Saint Louis University School of Medicine, where he successfully established a multidisciplinary program in head and neck oncology, among his many other accomplishments. In 2015, he returned to Boston to rejoin the full-time faculty of Mass Eye and Ear/Harvard Medical School. In 2020 he was named as the interim chair of the department and in July of 2021 the permanent chair as a result of a national search.

In his capacity as Chair, Dr. Varvares oversees all clinical and research program development at Mass Eye and Ear and the Academic Department of Otolaryngology-Head and Neck Surgery across the Harvard Medical School affiliate programs. His clinical and research interests are currently focused on the management of oral cavity cancer, both from the perspectives of optimal methods to completely remove the lesions and the methods of reconstruction that provide the best functional outcomes.

GUEST OF HONOR
Stacey T. Gray, MD FACS

Stacey Tutt Gray, MD, FACS is Associate Professor of Otolaryngology - Head and Neck Surgery at Harvard Medical School and the Vice Chair of Education and the Residency Program Director in the Department of Otolaryngology - Head and Neck Surgery. She also serves as the Sinus Center Director at Massachusetts Eye and Ear where her practice in Rhinology and Endoscopic Skull Base Surgery is located.

Dr. Gray received her medical degree from Georgetown University School of Medicine. She completed her residency in Otolaryngology - Head and Neck Surgery in the Harvard Combined Otolaryngology program and subsequently completed a fellowship in Rhinology at Massachusetts Eye and Ear after graduation. After completing fellowship, she joined the faculty at MEE in 2005.

Her research interests include clinical outcomes in rhinologic care for patients with chronic rhinosinusitis and skull base pathology as well as the delivery of surgical education. Dr. Gray is involved in multiple national societies and currently serves as the Chair of the Women in Rhinology section of the American Rhinologic Society and the FLEX Curriculum Chair of the Education Steering Committee for the American Academy of Otolaryngology - Head and Neck Surgery. She is also the past chair of the Otolaryngology Program Director Organization and the past president of the Society of University Otolaryngologists.

PROGRAM PLANNING COMMITTEE

Sonya Malekzadeh, MD FACS - **Program Chair**

Ralph B. Metson, MD FACS - **President**

Yuri Agrawal, MD

Jonathan M. Bock, MD

Dinesh K. Chhetri, MD

Reena Dhanda Patil, MD MBA

Theresa A. Hadlock, MD

Nathan W. Hales, MD BA FACS

Alexander T. Hillel, MD

David B. Hom, MD FACS

Romaine F. Johnson, MD MPH

Lamont R. Jones, MD MBA

Bradley W. Kesser, MD

Karen M. Kost, MD

Sandra Y. Lin, MD

Jennifer L. Long, MD PhD

Tanya K. Meyer, MD

Alan G. Micco, MD FACS

Koroush Parham, MD PhD

Steven D. Pletcher, MD

Diego A. Preciado, MD PhD

Liana Puscas, MD MHS MA FACS

Yelizaveta Shnayder, MD FACS

Maria V. Suurna, MD FACS

Travis T. Tollefson, MD MPH FACS

Eric W. Wang, MD FACS

Troy D. Woodard, MD FACS

2023 THESIS AWARD WINNERS

Harris P. Mosher Award
    Brianne B. Roby, MD
    Children's Visual Perception of Facial Scarring and Secondary Cleft Lip
    Deformity Using Eye Tracking Data

Edmund Prince Fowler Award
    Thomas J. Ow, MD MS FACS
    Capturing the Diversity of Head and Neck Squamous Cell Carcinoma Using
    Conditional Reprogramming Cell Culture Methods

Maureen Hannley Alternative Science Award
    Jose L. Mattos, MD, MPH
    Determinants of Patient Satisfaction after Endoscopic Sinus Surgery for Chronic
    Rhinosinusitis: A Mixed Methods Approach

Honorable Mention for Basic Science Award
    Konstantina M. Stankovic, MD PhD FACS
    Immune Profiling of Secreted Factors from Human Vestibular Schwannoma
    Cells and Tumor Associated Macrophages

Honorable Mention for Clinical Research Award
    Jennifer A. Villwock, MD
    Olfactory Dysfunction Phenotypes as Noninvasive Biomarkers of Cognitive
    Status and Disease

With Distinction Award
    Taher S. Valika, MD FACS
    Fluoroscopic Assisted Tongue Suspension: Advancement and Innovation in the
    Management of Complex Pediatric Obstructive Sleep Apnea

NEW FELLOWS TO BE INDUCTED

The New Fellows Ceremony followed by the reception with Triological Fellows is scheduled on Thursday, May 4 from 7:00 am to 7:50 am in Ballroom B.

James J. Daniero, MD MS

Jivianne T. Lee, MD FACS

Pavan S. Mallur, MD FACS BS

Nicole C. Maronian, MD FACS

Jose L. Mattos, MD MPH

Jaime E. Moore, MD MS

Luc G.T. Morris, MD FACS MSc

Thomas J. Ow, MD MS FACS

Nitin A. Pagedar, MD MPH

Spencer C. Payne, MD

Kevin A. Peng, MD

Brianne B. Roby, MD

Amy L. Rutt, DO FACS

Hitomi Sakano, MD PhD

Raj Sindwani, MD FACS

David F. Smith, MD PhD FACS FAAP

Konstantina M. Stankovic, MD PhD FACS

Taher S. Valika, MD FACS

Jennifer A. Villwock, MD

Yu-Lan Mary Ying, MD

Daniel M. Zeitler, MD FACS

HARRIS P. MOSHER AWARD

Given in recognition of the excellence of the Candidate's Thesis in Clinical Research. This honor was created to perpetuate the ideals of the great teacher for whom it was named and to bestow upn a worthy recipient the responsibility of furthering the highest standards of perfection in the study, teaching and practice of Otolaryngology.

HARRIS P. MOSHER • 1867-1954

Highly respected, feared, and revered by his students, Dr. Mosher attended Harvard College and the Harvard Medical School, receiving his MD degree in 1896. There were no formal residency training programs then, so he sought training at the best ear, nose and throat centers in Germany, namely, with Jansen in Berlin and Grunert in Halle. After returning home, Mosher became an instructor in the department of anatomy at the Massachusetts Eye and Ear Infirmary and the Harvard Medical School.

He started the first course in sinus anatomy in the United States. This course was to become famous for its content and its progenitor and was appropriately named "Mosher's course". It endured for 35 years.

In 1919 he was appointed Professor of Laryngology at the Harvard Medical School and Chief of Laryngology at the Massachusetts General Hospital. In 1932 he was appointed to the Walter Augustus LaCompte Chair of Otology at Harvard and at age 66 became the second individual to hold two chairs at Harvard. Dr. Mosher was a member and became the president of all of our prominent national otolaryngology societies. When the American Board of Otolaryngology was formed in 1924 (the second certification board after ophthalmology in 1917*) he was chosen as its president and served in that capacity for 25 years. He was the recipient of the Semon Medal from the Royal Society of Medicine of London, the Gold Medal from the American Laryngological Association, and a service medal from the American Academy of Ophthalmology and Otolaryngology. He is known for his intranasal ethmoidectomy technique and his method for the removal of safety pins swallowed by babies, for which he was given a citation by the American College of Surgeons in 1934.

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*Deliberations and progress in our specialty were interrupted by World War I. Also, there was growing resistance to authority to regulate specialty education and training--in essence, the transition from apprenticeships to formal training programs as we know them today. The need was urgent because some form of evaluation of physicians was needed to supplement the general licensing regulations of the various states' Boards of Public Health.

MOSHER AWARD RECIPIENTS

1957 . . . . Harold G. Tabb, MD
1958 . . . . Jack V.D. Hough, MD
. . . . John A. Kirchner, MD
1959 . . . . Maurice Schiff, MD
1960 . . . . Walter A. Petryshyn, MD
. . . . Alex Weisskopf, MD
1961 . . . . Godfrey E. Arnold, MD
1962 . . . . Wesley E. Compere, MD
1963 . . . . Edward G. McCoy, MD
. . . . William W. Montgomery, MD
. . . . Henry J. Rubin, MD
1964 . . . . Hugh O. Barber, MD
1965 . . . . Brian F. McCabe, MD
1966 . . . . No award
1967 . . . . Frank N. Ritter, MD
. . . . George T. Singleton, MD
1968 . . . . Leslie Bernstein, MD
1969 . . . . David A. Hilding, MD
. . . . Lindsay L. Pratt, MD
1970 . . . . Herbert H. Dedo, MD
1971 . . . . Byron J. Bailey, MD
1972 . . . . Hugh F. Biller, MD
1973 . . . . Mark May, MD
. . . . Andrew W. Miglets, MD
1974 . . . . Robert W. Cantrell, MD
1975 . . . . Donald G. Sessions, MD
1976 . . . . No award
1977 . . . . Donald B. Hawkins, MD
1978 . . . . . . Robert A. Jahrsdoerfer, MD
1979 . . . . Arnold M. Noyek, MD
1980 . . . . H. Bryan Neel III, MD PhD
1981 . . . . Bruce A. Feldman, MD
1982 . . . . Roger L. Crumley, MD
1983 . . . . S. George Lesinski, MD
1984 . . . . Irwin F. Stewart, MD
1985 . . . . Frank E. Lucente, MD
1986 . . . . Harold C. Pillsbury, MD
1987 . . . . James N. Thompson, MD
1988 . . . . Thomas V. McCaffrey, MD
1989 . . . . Arnold Komisar, MD
. . . . Bernard R. Marsh, MD

1990 . . . . Patrick J. Gullane, MD
1991 . . . . Robin T. Cotton, MD
1992 . . . . Myles L. Pensak, MD
1993 . . . . Ronald A. Hoffman, MD
1994 . . . . Robert Sofferman, MD
1995 . . . . Fred Herzon, MD
1996 . . . . Stimson P. Schantz, MD
1997 . . . . Scott C. Manning, MD
1998 . . . . No award
1999 . . . . Dennis S. Poe, MD
2000 . . . . Lyon L. Gleich, MD
. . . . David J. Terris, MD
2001 . . . . Joseph G. Feghali, MD
2002 . . . . . . Wendell G. Yarbrough, MD
2003 . . . . . . Edwin M. Monsell, MD PhD
2004 . . . . Craig A. Buchman, MD
2005 . . . . Francisco J. Civantos, MD
2006 . . . . Henry T. Hoffman, MD
. . . . Dana M. Thompson, MD
2007 . . . . Erin D. Wright, MD
2008 . . . . Robert C. O'Reilly, MD
2009 . . . . Steven J. Wang, MD
2010 . . . . Adrian L. James, MD
2011 . . . . Robert L. Ferris, MD PhD
2012 . . . . . . Nira A. Goldstein, MD MPH
. . . . Judith E.C. Lieu, MD MSPH
2013 . . . . Joseph M. Chen, MD
. . . . Adam M. Zanation, MD
2014 . . . . . George B. Wanna, MD FACS
2015 . . . . Lisa E. Ishii, MD MHS
2016 . . . . Giovana R. Thomas, MD FACS
2017 . . . . Jonathan M. Bock, MD
2018 . . . . Aaron C. Moberly, MD
2019 . David P. Goldstein, MD MSc FACS
2020 . . Farrel J. Buchinsky, MBChB FACS
2021 . . . . Kevin D. Brown, MD PhD
2022 . . . . . Theodore R. McRackan, MD
2023 . . . . Brianne B. Roby, MD

EDMUND PRINCE FOWLER AWARD

Given in recognition of the excellence of the Candidate's Thesis in Basic Research. This honor was created to perpetuate the ideals of the great teacher for whom it was named and to bestow upon a worthy recipient the responsibility of furthering the highest standards of perfection in the study, teaching and practice of Otolaryngology.

EDMUND PRINCE FOWLER • 1872-1966

It says something about the intellectual wealth of the Triological Society that Edmund Prince Fowler Sr., MD, succeeded Max Goldstein, MD, as president in 1932. Both were giants in otology, prolific authors and advocates for the hard of hearing. In honor of Dr. Fowler's contributions to otolaryngology, the Society established The Edmund Prince Fowler Award in 1971, given each year for the best thesis in basic research.

After earning his MD from Columbia University, Dr. Fowler joined the Manhattan Eye and Ear Hospital and became a clinical professor at Columbia University in 1933. He was a decorated colonel of World War I. He was president of the American Otological Society in 1937, recipient of the first Award of Merit from that society in 1952 and founder of the first hearing center in the United States (in New York City). To the legacy of the prodigious researcher and "Dean of Audiology", as he was called, we attribute the invention of the modern clinical audiometer. He tested many patients and soon became aware of the fact that some patients with severe or unilateral losses had suprathreshold hearing values, a condition he coined as "recruitment". This clinical finding resulted in the Alternate Binaural Loudness Balance test, the first to separate cochlear from retrocochlear losses.

In his address to the sections in January 1932, Dr. Fowler described specific recommendations for hearing tests on schoolchildren. He also asked his colleagues to be thoughtful: "Let us not forget to treat the patient as a sensitive human being," he said, "and aid him in surmounting the drawbacks and psychological reactions to his disability."

At the 38th Annual Meeting in Atlantic City, NJ, in 1932, Dr. Fowler shared the spotlight with Edward B. Dench, MD, first president of the Triological, then 72 years old. (Dr. Dench had been named Honorary President of the Society in 1931 until his death in 1936.) At the meeting, George Richards, MD, editor of the Transactions, outlined a list of guidelines for submissions. During the same meeting the council approved a resolution supporting the ABO and its work in raising educational standards in the specialty as part of an effort to stem the tide of proposals for examinations for specialists by each of the 48 states.

Dr. Fowler died in 1966, six months after the last of his 113 papers was presented (at 94 years of age!) at a meeting of the American Otological Society.

FOWLER AWARD RECIPIENTS

1971 . . . . Richard R. Gacek, MD
1972 . . . . Duane W. Nagle, MD
. . . . Raimund G. Rueger, MD
1973 . . . . Robert J. Ruben, MD
1974 . . . . Robert I. Kohut, MD
. . . . Willard B. Moran, Jr., MD
. . . . Gershon J. Spector, MD
1975 . . . . Gregory J. Matz, MD
. . . . Richard L. Vorhees, MD
1976 . . . . Shokri Radpour, MD
1977 . . . . LaVonne Bergstrom, MD
1978 . . . . Diran O. Mikaelian, MD
1979 . . . . William L. Meyerhoff, MD
. . . . Clarence T. Sasaki, MD
1980 . . . . Robert A. Schindler, MD
1981 . . . . Don E. Gebhart, MD
1982 . . . . Michael E. Johns, MD
1983 . . . . Bruce W. Jafek, MD
1984 . . . . David E. Schuller, MD
1985 . . . . Marvin P. Fried, MD
1986 . . . . Michael Friedman, MD
1987 . . . . Stanley M. Shapshay, MD
1988 . . . . Timothy T.K. Jung, MD
1989 . . . . Robert T. Sataloff, MD
1990 . . . . Soly Baredes, MD
1991 . . . . Douglas E. Mattox, MD
1992 . . . . . . Vanessa G. Schweitzer, MD
1993 . . . . Ralph F. Wetmore, MD
1994 . . . . Paul Lambert, MD
1995 . . . . Michael Pratt, MD
1996 . . . . P. Ashley Wackym, MD

1997 . . . . Allen Hillel, MD
. . . . D. Bradley Welling, MD
1998 . . . . No award
1999 . . . . Debra L. Tucci, MD
2000 . . . . Rick A. Friedman, MD
. . . . Michael D. Seidman, MD
2001 . . . . J. Christopher Post, MD
2002 . . . . Richard D. Kopke, MD
2003 . . . . Chung-Ku Rhee, MD PhD
2004 . . . . Shawn D. Newlands, MD
2005 . . . . Steven W. Cheung, MD
2006 . . . . Alan G. Micco, MD
2007 . . . . Bradley W. Kesser, MD
2008 . . . . Eric M. Genden, MD
. . . . Marlan R. Hansen, MD
2009 . . . . . Ravindhra G. Elluru, MD PhD
. . . . Andrew P. Lane, MD
2010 . . . . Philip D. Littlefield, MD
2011 . . . . Stacey L. Halum, MD
2012 . . . . Quyen T. Nguyen, MD PhD
2013 . . . . Subinoy Das, MD FACS
2014 . . . . Hinrich Staecker, MD PhD
2015 . . . . . Bradford A. Woodworth, MD
2016 . . . . Gregory A. Grillone, MD FACS
2017 . . . . Syed F. Ahsan, MD FACS
2018 . . . Murugappan Ramanathan, MD
2019 . . . Amber U. Luong, MD PhD FACS
2020 . . . . Alexander Gelbard, MD
2021 . . . . Adam J. Luginbuhl, MD
2022 . . . . Steven J. Eliades, MD PhD
2023 . . . . . . Thomas J. Ow, MD MS FACS

MAUREEN HANNLEY AWARD

Given in recognition of the excellence of the Candidate's Thesis in an Alternative Science category. This honor was created in 2016 to honor Dr. Hannley's contributions and legacy to the Triological Society. She was the Society's Thesis and Research Grants consultant from 2006 to 2015. Dr. Hannley assisted young researchers and mentored candidates for Triological Fellowship, assisting them with preparation of their theses.

MAUREEN HANNLEY • 1942-2015

Maureen Hannley, PhD, was a dedicated advisor and respected for her commitment to advance the mission of the Society to attract the best minds in otolaryngology. Her tireless work assured that the quality of the contributions of the candidates reflected the honor and prestige of membership. As the diversity of the academic and scientific work of the otolaryngology community evolved, Dr. Hannley acknowledged the importance of alternative scholastic contributions to our Society that fall outside the traditional basic and clinical research paradigms. This award is annually bestowed upon the candidate whose thesis represents an outstanding contribution in the alternative science category of Technology/Procedure Development, Otolaryngology Status and Trends, Health Services Research, or Historical Perspectives.

Maureen Hannley, PhD received her MA from the University of Arizona and a PhD in Hearing Science and Biocommunication from Baylor College of Medicine. Throughout her academic and research career, she held appointments at Louisiana State University, Kresge Hearing Research Laboratory, Stanford University School of Medicine, Duke University, Medical College of Wisconsin and, most recently, was a Professor in the Department of Otolaryngology at University of Arizona. Dr. Hannley held many administrative appointments, including that of Chief Research Officer at the AAO-HNSF and Health Services Administrator and Director of the Hearing Research Program at NIDCD. She lent her expertise to numerous advisory boards including NIH, ARO, SUO, and Boys Town National Research Hospital, to name a few. She was elected as an Honorary Triological Society Fellow in 2009.

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2008 . . . . No Award
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1995 . . . . Kevin A. Shumrick, MD
. . . . Robert C. Wang, MD
1996 . . . . Author Unknown
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2018 . . . . David J. Eisenman, MD
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TRIOLOGICAL SOCIETY
125TH ANNUAL MEETING AT COSM
HYNES CONVENTION CENTER / SHERATON BOSTON
BOSTON, MASSACHUSETTS

THURSDAY, MAY 4, 2023

General Session
Ballroom B

7:00 - 7:50   **Business Meeting/New Fellow Ceremony & Reception (Fellows only)**

8:00   **Welcome and Introductions by President**
Ralph B. Metson, MD FACS, Boston, MA

  Presidential Citations
  Gerald B. Healy, MD FACS, Boston, MA
  Mark A. Varvares, MD FACS, Boston, MA
  Guest of Honor
  Stacey T. Gray, MD FACS, Boston, MA

8:15   **Introduction of Guest of Honor and Remarks**
Measuring Success
Stacey T. Gray, MD FACS, Boston, MA

8:20   **Presidential Address**
From Plymouth Rock to Present Day: The Triological's 125th
Ralph B. Metson, MD FACS, Boston, MA

8:35   **Introduction of Joseph H. Ogura, MD Annual Lecturer**
Rochelle P. Walensky, MD MPH, Director of the Centers for Disease Control and Prevention

9:05   **Introduction of 2023 Thesis Award Presentations**
Daniel Deschler, MD FACS, Boston, MA, Thesis Chair

9:08   **2023 HARRIS P. MOSHER THESIS AWARD FOR CLINICAL SCIENCE**
Children's Visual Perception of Facial Scarring and Secondary Cleft Lip Deformity Using Eye Tracking Data
Brianne B. Roby, MD, St. Paul, MN

Educational Objective: At the conclusion of this presentation, participants should

be able to understand eye tracking technology and how it can be used in pediatric patients to understand facial scarring in their peers.

Objectives: Eye tracking has been established as a method for assessing perception of facial deformities in pediatric patients. The purpose of this study is to determine children's perception of secondary cleft lip deformity (SCLD) using objective eye tracking technology and subjective responses on a survey to gain understanding of pediatric perceptions of facial scarring. Study Design: Cross-sectional study of pediatric participants age 5-17 years old. Methods: Participants viewed images of children's faces on a computer affixed with an eye tracking device. Sixteen images were displayed, twelve with unilateral SCLD and four with no facial scarring (control). Eye tracking data, including fixation duration, visit duration, visit count, and fixation count were obtained. Gaze samples were analyzed for five areas of interest (AOIs): eyes, nose, mouth, scar (if applicable), and upper lip. Immediately after viewing each image, participants answered two survey questions relating to facial asymmetry and their attitude toward the child pictured. For analysis, participants were divided into age groups: early elementary: 5-6 years, late elementary: 7-11 years, middle school: 12-14 years, and high school: 15-17 years. Results: In total, 259 participants were enrolled (42.5% female). Mean age was 10.5 years old and 78% identified as White. In all age groups, total fixation time was greater for SCLD compared to control images. Early Elementary age children spent statistically significantly less time assessing the nose AOI compared to other age groups, and also spent the least total fixation time and had the lowest visit count on all AOIs, compared to the older groups. The subjective survey questions showed similar trends with early and late elementary age not noticing facial asymmetry compared to older age groups. Conclusions: This study demonstrates the successful use of eye tracking technology in children as young as 5 years old. This study demonstrated a trend that suggests that SCLD is perceived as less noticeable in early elementary age children and becomes more noticeable to older age groups. Decisions on revision surgery for SCLD might take this information into account when the decision and timing of secondary intervention is based on concerns related to peer perception.

9:17   **2023 EDMUND PRINCE FOWLER THESIS AWARD FOR BASIC SCIENCE**
Capturing the Diversity of Head and Neck Squamous Cell Carcinoma Using Conditional Reprogramming Cell Culture Methods
Thomas J. Ow, MD MS FACS, Bronx, NY

Educational Objectives: At the conclusion of this presentation, participants should be able to 1) summarize the deficiencies in current clinical and pre-clinical cancer research related to representation of racial and ethnic minority groups; 2) describe conditional reprogramming cell culture methods and how this system can be used to study head and neck cancer cells; and 3) compare the utility and applicability of standard cancer research methods to contemporary models and near-future advances in head and neck cancer research

Objectives: To utilize conditional reprogramming (CR) methods to generate a head and neck squamous cell carcinoma (HNSCC) cell line library that captures both patient and tumor diversity. To demonstrate that HNSCC cells maintained using CR culture methods can be used to study tumor biology and treatment response in various translational cancer research models. Methods: Patients with HNSCC were recruited on an IRB approved protocol to provide tumor tissue for the establishment of cell cultures using CR methods. Successful cultures were validated against banked reference tumor tissues using short tandem repeat (STR) genotyping and immuno-histochemical staining for squamous cancer markers, cytokeratin 5/6 and ΔNp63. The morphology of CR lines grown in culture was photodocumented. Clinical data, including patient demographics, tumor staging, treatment, and outcome information were recorded and linked to successful CR cultures. Several CR lines were tested for the presence of HPV DNA and gene expression of HPV oncoproteins and compared to clinical p16 status. Selected cell lines were used to measure response to cisplatin and radiation treatment using 3-D organoid models. Additionally, selected CR lines were grown in flank and orthotopic xenograft tongue tumor models in nude mice to demonstrate feasibility of use in these models. Results: 31 of 44 (70%) HNSCC tumors successfully established CR lines, validated by short tandem repeat (STR) genotyping and staining for cytokeratin 5/6 and ΔNp63. The patient cohort with successful CR culture was racially and ethnically diverse (26% Black, 65% Hispanic). Race was significantly associated with successful vs. failed CR culture (p=0.003) with a high failure rate among White subjects (7/10). No other factors (including p16 status, tumor stage, recurrent vs. primary tumors) were found to be significantly associated with successful CR culture. Tumors from major upper aerodigestive sites (oral cavity, pharynx, larynx) were represented by successful cultures. 18 of the CR lines and matched tumors were tested for HPV DNA. Seven successful CR lines were derived from p16-postive oropharynx cancers. HPV was genotyped in four p16-positive oropharyngeal squamous cancers, and CR lines maintained expression of the same serotype HPV virus in each of these. Proof-of-concept studies demonstrated that HNSCC CR cultures could be used to measure treatment response to cisplatin and radiation, could establish 3-D organoid cultures, and were able to develop flank and orthotopic tongue xenograft tumors in nude mice. Whole exome sequencing has been carried out in a subset of 15 matched tumor and CR cultures. Conclusions: CR methods can be used to establish and maintain HNSCC tumors with a high success rate, providing a robust strategy for capturing the tumor and patient diversity inherent to this disease. The CR lines can be successfully employed in experimental assays to study tumor biology and treatment responses. CR lines linked to detailed clinical information and banked reference patient derived samples are a valuable resource for the advancement of HNSCC research.

9:26 **2023 MAUREEN HANNLEY THESIS AWARD FOR ALTERNATIVE SCIENCE**
Determinants of Patient Satisfaction after Endoscopic Sinus Surgery for Chronic Rhinosinusitis: A Mixed Methods Approach
Jose L. Mattos, MD MPH, Charlottesville, VA

Educational Objective: At the conclusion of the presentation, participants should be able to 1) understand patient expectations surrounding sinus surgery; 2) recognize the impact of expectations on patient satisfaction after sinus surgery; and 3) appreciate the relationship between patient expectations, satisfaction, and traditional sinus surgery outcome metrics.

Objectives: To perform the first mixed-methods analysis of patient expectations and satisfaction after endoscopic sinus surgery (ESS). We hypothesized that: 1) qualitative interviews will give a unique insight into the determinants of expectations and satisfaction after ESS not previously gathered by quantitative studies, 2) willingness to undergo ESS again will be a strong measure of satisfaction, and that 3) fulfillment of patient expectations, or lack thereof (disconfirmation) will be the primary determinant of patient satisfaction after surgery. Study Design: Multi-institutional, mixed methods study. Methods: In this mixed-methods approach with explanatory design guided by a theoretical framework, subjects with chronic rhinosinusitis (CRS) undergoing ESS participated in a phone based semi-structured interview. Interviews were designed to describe patient expectations preoperatively, and then, satisfaction with care, satisfaction with outcome, and disconfirmation six months after ESS. Quantitative questions (Likert scale) were followed by qualitative questions for subjects to expand on their quantitative answers. Demographics and traditional CRS metrics (e.g., CT, endoscopy, SNOT-22) were collected. Interviews were recorded, transcribed, and coded followed by data reduction, display and conclusion drawing from which categories emerged. Descriptive statistics, logistic regression, and mediation analyses were performed. Data visualization combined quantitative and qualitative data. Sample size was determined by thematic saturation to qualitative responses. Results: 52 patients were included in the mixed method analysis, and 110 were included in the mediation analysis. 56% of patients were male with an average age of 48. Mean change in SNOT-22 was 21, and 25% of patients did not achieve a minimal clinically important difference MCID. Of the patients who did not achieve MCID, 79% of them would still choose to have sinus surgery again. Qualitative interviews revealed multiple themes surrounding the patient experience with ESS. These included feelings toward surgery, expected symptom resolution, importance of symptoms, satisfaction with outcome, outcome symptom resolution, satisfaction with recovery, feelings about medical care and satisfaction with information. Across interviews, themes of expectations, symptom resolution and general satisfaction emerged. Regression analysis shows no association between CRS metrics and satisfaction (p>0.05) except for change in SNOT-22 scores (OR 1.2, p=0.015). The most important predictor of satisfaction is whether pre-operative

expectations were met (OR 3.8, p<0.0001). In mediation analysis, the effect of SNOT-22 on patient satisfaction is completely mediated by pre-operative expectations (indirect effect p = 0.009, direct effect p = 0.17). Conclusions: There is no agreed upon traditional success measure for ESS, and there is a disconnect between traditional objective and subjective metrics. Patient expectations and satisfaction are important yet understudied measures in CRS and ESS. Traditional metrics exclude impactful aspects of the patient experience and have no effect on surgical satisfaction once patient expectations are accounted for. This study provides the first quantitative and qualitative insight into patient expectations, satisfaction, and outcomes after ESS, and provide important insights and measures of expectations and satisfaction that can be utilized immediately in clinical practice and guide future research on ESS outcomes and shared decision making.

9:35   **Laryngoscope Star Reviewers**
                Samuel H. Selesnick, MD FACS, New York, NY

9:37 - 10:05   **BREAK/VISIT EXHIBITORS/VISIT POSTERS**

Thursday 10:05 - 11:25
Laryngology/Bronchoesophagology Session
Ballroom B

10:05 - 10:45   **PANEL: LARYNGOLOGY/BRONCHOESOPHAGOLOGY**
                Approach to the Difficult Airway: What's in the Toolbox?
                Moderator:
                   Karen M. Kost, MD, Montreal, QC
                Panelists:
                   Alexander T. Hillel, MD, Baltimore, MD
                   Natasha Mirza, MD FACS, Philadelphia, PA
                   Karla D. O'Dell, MD, Los Angeles, CA

10:45 - 10:50   **Q&A**

Moderators:
Jonathan M. Bock, MD, Milwaukee, WI
Tanya K. Meyer, MD, Seattle, WA

10:50   **Creating a Supraglottic Sound Source when the Phonatory Glottis is Nonvibratory (How I Do It)**
             Steven M. Zeitels, MD, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand strategies to restore a functional voice (phonatory sound source) to patients who are aphonic due to glottal vibratory failure.

Objectives: There are scenarios when the phonatory glottal mucosa has severe loss

of pliability so entrained vibration is difficult or impossible. This can occur from diseases and/or treatment of cancer, dysplasia, and recurrent respiratory papillomatosis as well as varied forms of stenosis, trauma, infections, and amyloidosis. In selected circumstances, it is strategically effective to create a supraglottic sound source to restore voice function. This review examines the principles of this approach with case presentations that demonstrate novel surgical procedures. Study Design: Retrospective case reviews. Methods: A retrospective analysis of 2 cases that optimally demonstrate different physiological principles for creating a supraglottic voice from near aphonia and are illustrated with demonstrable video documentation. In one scenario, an endoscopic supraglottic laryngoplasty comprised of local mucosal flaps was performed to transform one aryepiglottic fold into a stable vibratory sound source. In the other case, a subglottic laryngoplasty was done by resecting part of the cricoid cartilage to enhance an unstable supraglottic compensatory voice pattern. Results: In both cases, videostroboscopy clearly demonstrated enhanced voice and associated supraglottic vibratory function despite aerodynamic incompetence during attempted glottal vibration. Both patients were extremely satisfied with their voice enhancement and were able to return to work without restriction. Conclusions: Severely impaired phonatory mucosal pliability of the glottis can be disabling and devastating. Medializing and/or reshaping the vocal fold paraglottic region may not enhance the voice. An alternative is to utilize supraglottic soft tissues. These cases demonstrate clear novel strategies that can be used to create a stable supraglottic voice when the glottic mucosa is not pliable.

10:55   End to End Deep Learning Classification of Vocal Pathology Using Stacked Vowels

George S. Liu, MD, Palo Alto, CA; Jordan M. Hodges, BS, Stanford, CA; Jingzhi Kevin Yu, BS, Stanford, CA; C. Kwang Sung, MD, MS, Stanford, CA; Elizabeth DiRenzo, PhD, Stanford, CA; Philip C. Doyle, PhD, Stanford, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to describe opportunities and limitations in the application of artificial intelligence technology specific to the screening and classification of vocal pathology.

Objectives: Advances in artificial intelligence (AI) technology have increased the feasibility of developing automated screening tools to detect and classify vocal fold pathologies using voice recordings. Most AI tools for this purpose analyze recordings of a single sustained vowel in isolation. This work investigated the potential for an AI model to analyze multiple vowels simultaneously to enhance detection of vocal pathology. Study Design: Retrospective cohort study. Methods: Voice samples from the Saarbruecken Voice database, including three sustained vowels (/a/, /i/, and /u/) from 674 healthy human participants and 654 dysphonic patients, were used to train 1 dimensional convolutional neural network models for binary classification of healthy versus dysphonic voice recordings and, among dysphonic voices, hyperfunctional dysphonia versus laryngitis. For each classification task, two models were trained: 1) a baseline model that analyzed individual vowel recordings in isolation;

and 2) a stacked vowel model that analyzed all three vowels (/a/, /i/, and /u/) simultaneously. The dataset was split into 60% training, 20% validation, and 20% test sets. Results: Overall, the stacked vowel model performed better than the baseline model on the test dataset for binary classification of healthy versus dysphonic voices (accuracy 0.84 vs 0.80, AUROC 0.89 vs 0.82, F1 score 0.85 vs 0.84) and for classification of hyperfunctional dysphonia versus laryngitis (accuracy 0.82 vs 0.70, AUROC 0.85 vs 0.81, F1 score 0.81 vs 0.65). Conclusions: This study demonstrates the promising potential of using multiple sustained vowel recordings to augment AI driven screening and classification of vocal pathology.

11:00   Comparison of the T Cell Receptor Repertoires in Idiopathic Subglottic Stenosis and Healthy Patients

Evan Clark, BS, Nashville, TN; Quanhu Sheng, PhD, Nashville, TN; Marisol Ramirez, MS, Nashville, TN; Edward Talatala, BS, Nashville, TN; Wenda Ye, MD, Nashville, TN; Alexander Gelbard, MD, Nashville, TN

Educational Objective: At the conclusion of this presentation, participants will understand the rationale for exploring T cell receptor repertoires in human tissue. Participants will also be able to explain differences in the T cell population of healthy patients compared to idiopathic subglottic stenosis patients.

Objectives: Compare the adaptive immune response in the airway scar of idiopathic subglottic stenosis (iSGS) patients to healthy patients. Study Design: Biopsies of airway scar from patients with idiopathic subglottic stenosis (iSGS) and tracheal tissue from healthy patients were processed and analyzed via single cell RNA sequencing (ssRNAseq). The unique T cell receptor (TCR) from each cell was used to interrogate the native T cell repertoires. Methods: Scar biopsies were obtained from 15 iSGS patients. TCR clonotypes were characterized using single cell RNA sequencing (scRNAseq). Public scRNAseq data from the trachea of 3 healthy patients was obtained. Established bioinformatic pipelines in Seurat, Immunarch, and GLIPH2 were employed to compare the TCR repertoires. Pubic databases of immune receptor specificity were queried for matches. Results: Single cell RNA sequencing provided unique TCR sequences for individual T cells. TCR repertoire overlap analysis showed low overall similarity both between iSGS patients and when compared to controls. Similarity network analysis showed major clustering around specific CDR3b sequence motifs. Pubic database matches for immune receptor specificity showed differences in the major disease matches between iSGS and control patients. A significant decrease in TCR diversity was observed in iSGS patients (Chao1 diversity score: iSGS vs. Control; 2558 vs. 24892, $p = 0.0016$). Conclusions: In iSGS airway scar, T cells appear to be less diverse and bind to different antigens than healthy patients. Each patient has a distinctly different TCR repertoire but contains similar motifs. Further study into the importance and cause of these conserved motifs represents a novel strategy to unravel iSGS disease biology.

11:05   **Trends in Medicare Reimbursement for Laryngology Procedures between 2000 - 2021**
James R. Xu, BS, Cleveland, OH; Nicole Maronian, MD, Cleveland, OH; Todd Otteson, MD MPH, Cleveland, OH; Robert Lorenz, MD MBA, Cleveland, OH; Michael Lerner, MD, New Haven, CT; Paul C. Bryson, MD MBA, Cleveland, OH

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the trends of Medicare reimbursement from 2000 to 2021 for common laryngology procedures in varied practice settings.

Objectives: To characterize Medicare reimbursement trends for laryngology procedures over the last two decades. Study Design: Retrospective, cross-sectional analysis. Methods: This analysis used CMS' Physician Fee Schedule (PFS) look-up tool to determine the reimbursement rate of 49 common laryngology procedures, which were divided into four groups based on their practice setting and clinical use: office based, airway, voice disorders, and dysphagia. The annual reimbursement rate for each procedure was averaged across all localities and adjusted for inflation. Trends for both the facility and non-facility rate were determined. Lastly, a weighted average of the reimbursement change for each group was calculated. Each procedure was weighted according to its 2020 utilization from the Medicare physician and other practitioners' database. Results: CMS defines facilities as hospitals, hospital outpatient clinics, ASCs, and other institutions and non-facilities as physician offices. The PFS reports the physician service reimbursement for facilities and global reimbursement for non-facilities. In facilities, the weighted average reimbursement change between 2000 and 2021 for office based procedures was -2.0%, for airway procedures was -27.9%, for voice disorders procedures was -38.5%, and for dysphagia procedures was -2.5%. In non-facilities, the weighted average reimbursement change for office based procedures was -17.0%. The procedures in the remaining groups did not have a corresponding non-facility reimbursement rate. Conclusions: Like other otolaryngology subspecialties, inflation adjusted reimbursements for common laryngology procedures have decreased substantially over the past two decades. Furthermore, despite the growing trend of office based laryngology procedures, there is a decrease in reimbursement with a larger decrease for those performed in physician offices.

11:10   **Voice and Swallowing Outcomes following Revision Anterior Cervical Discectomy and Fusion Using a 2 Team Surgical Approach**
Lydia Chun Yang, BS, Birmingham, AL; Jeffrey Dewitt Warner, BS, Birmingham, AL; Mark N. Hadley, MD FACS, Birmingham, AL; Kirk Withrow, MD, Birmingham, AL; Duane Trahan, MS, Birmingham, AL; Jessica Warren Grayson, MD, Birmingham, AL

Educational Objective: At the conclusion of this presentation, the participants should be able to explain incidence and risk factors for dysphagia and vocal cord palsy (VCP) after revision anterior cervical discectomy and fusion (ACDF) surgery

using a 2 team approach.

Objectives: Determine rates of dysphagia and VCP after revision ACDF with a 2 team approach. Study Design: Prospective, nonrandomized. Methods: 222 patients were enrolled. All patients had prior ACDF surgery with planned revision using an otolaryngologist and neurosurgeon. Dysphagia was assessed via MD Anderson Dysphagia Inventory (MDADI) and fiberoptic endoscopic evaluation of swallowing (FEES). Functional dysphagia was the need for a modified diet, and clinical dysphagia was the need for therapeutic or swallowing precautions. VCP was assessed using videolaryngostroboscopy (VLS). Results: 109 patients were included. Forty-four percent of patients were male (age: 52.23 +/- 9.16 years old). There was a decline in composite MDADI scores postop (-5.62 +/- 11.47, p<0.001). Clinical MDADI decline (MCID=10) was related to number of revision cervical levels (15.2% v 2.6%, p=0.044 for 5 levels) with no differences in gender, BMI, or number of previous operations. Incidence of functional dysphagia and clinical dysphagia was 25.3% and 3.8%, respectively. Both occurred at a higher rate in longer revision segments (four or more levels), although they were not statistically significant (28.6% v 23.4%, p=0.574 functional, 7.9% v 1.5%, p=0.134 clinical). Similarly, VCP incidence was 7.2% and more prevalent in longer revision segments (11.1% v 4.9%, p=0.418). All VCPs were resolving at the time of last otolaryngology evaluation and within two months of surgery. One patient required vocal cord injection. Conclusions: Dysphagia and VCP occur more often in long segment ACDF. However, rates of immediate VCP are low when using a 2 team approach for revision ACDF, and early involvement of otolaryngology can help improve long term outcomes.

11:15 - 11:25   Q&A

THURSDAY 11:25 - 12:00
PEDIATRIC PANEL
BALLROOM B

11:25 - 12:00   PANEL: PEDIATRIC OTOLARYNGOLOGY
Tackling the Toughest Questions in Pediatric OSA
Moderator:
    Romaine F. Johnson, MD MPH, Dallas, TX
Panelists:
    Norman R. Friedman, MD, Aurora, CO
    Earl H. Harley, MD FACS, Washington, DC
    Jennifer M. Lavin, MD, Chicago, IL

12:00 - 12:05   Q&A

12:05 - 1:00   LUNCH/VISIT EXHIBITORS/VISIT POSTERS

THURSDAY 1:00 - 2:20
FACIAL PLASTICS SESSION
BALLROOM B

Moderators:
Lamont R. Jones, MD MBA, Detroit, MI
Sherard A. Tatum, MD FACS, Syracuse, New York

1:00   Trends in Management and Cost Burden of Facial Fractures: A 13 Year Analysis
Rachel Elisa Weitzman, MD MPH MS, New York, NY; Karena Zhao, BS, New York, NY; Tejas Subramanian, BS, New York, NY; Anthony P. Sclafani, MD, New York, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to understand trends in management of facial fractures and their costs from one of the largest comprehensive databases of facial fractures.

Objectives: To discuss patient demographics, management, and costs associated with the treatment of facial fractures at a major metropolitan level 1 trauma center. Study Design: Retrospective chart review. Methods: Retrospective chart review at a level 1 trauma academic medical center identified 4,965 facial fractures in 2,479 patients who presented from 2008 to 2021. Patient demographics, mechanism of injury, associated injuries, treatment information, and financial data were collected and are in the process of being analyzed to determine factors associated with surgical management and increased cost burden. Results: Our 13 year experience identified 1,628 males and 851 females with a mean age of 45.7 years. Orbital fractures were the most common (41.6%), followed by maxilla fractures (20.4%). The most common mechanism was fall (43.0%). Surgical management was recommended for 38% of patients. Results are in process with regard to analysis of factors associated with surgical management and increased cost burden. Conclusions: This study will represent one of the largest comprehensive databases of facial fractures and one of the first to provide a descriptive cost analysis of facial trauma management.

1:05   The Impact of Diabetes on Open Orbital Floor Blowout Fracture Repair
Owais M. Aftab, BS, Newark, NJ; Avneet Randhawa, BS, Newark, NJ; Karandeep S. Randhawa, BS, Newark, NJ; Sree C. Chinta, BA, Newark, NJ; Jean A. Eloy, MD, Newark, NJ; Christina H. Fang, MD, Bronx, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss the importance of diabetes and its association with complications following open orbital fracture repair.

Objectives: Open orbital floor blowout fracture repair is essential to the care of patients with orbital fracture injuries, which are typically associated with trauma. We aimed to analyze the association of diabetes mellitus (DM) with outcomes

in patients undergoing open orbital fracture repair. Study Design: Retrospective database review. Methods: This retrospective cohort analysis utilized the 2005-2018 National Surgery Quality Improvement Program (NSQIP). Current procedural terminology (CPT) codes were used to identify cases with open treatment of orbital floor blowout fracture. Demographics, comorbidities, and complication incidences were compared between DM and non-DM patients using chi square analyses. The independent effect of DM on adverse outcomes was analyzed using binary logistic regression. Results: 1,101 (97.4%) non-DM and 38 (3.3%) DM patients undergoing open orbital floor blowout fracture repairs were identified from 2005 to 2018. Chi square analyses of comorbidities indicated DM patients had higher incidences of obesity (63.2% vs. 28.9%; p< 0.001), dyspnea (18.4% vs. 1.5%; p< 0.001) and hypertension (81.6% vs. 20.6%; p< 0.001). Demographic characteristics significantly differed between the cohorts including sex (p=0.016) and age (p< 0.001). DM patients had higher incidences of postoperative sepsis (2.6% vs. 0.0%; p=0.033), any medical complication (5.3% vs. 0.5%; p=0.020), and unplanned readmission (15.8% vs. 2.7%; p=0.017). Logistic regression analyses indicated DM was associated with unplanned readmission (OR 6.096; 95% CI 2.615 - 14.212; p< 0.001) and any medical complication (OR 11.190; 95% CI 1.135 - 110.310; p=0.039). Conclusions: DM is an important factor associated with increased odds of unplanned readmission and morbidity in patients undergoing open orbital floor blowout fracture repair.

1:10   Synthetic Model for Gracilis Free Flap Pedicle Dissection: An Educational Tool for Surgeons
Sonam Dodhia, MD, New York, NY; Scott Troob, MD, New York, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to describe a novel synthetic model for the acquisition and safe clinical translation of surgical skills in free flap donor site dissection.

Objectives: Donor pedicle dissection in free flap microvascular reconstruction surgery is a precise surgical skill that requires extensive training. Errors in the early stages of training can result in unacceptable consequences in patients. Reported in the literature are nonliving animal models with the downsides of significant differences with humans in size and anatomy, cost, and ethical concerns. Here, we describe a synthetic model for gracilis free flap pedicle dissection as an educational tool for surgeons to develop skills that can safely be translated to the clinical setting. Study Design: The surgical model needed to simulate the surgical approach, challenge the trainee to master the unique critical aspects of this surgery (successfully identify and isolate the neurovascular pedicle for the gracilis free flap without damaging any neurovascular structures), and be of reproducible construction. Methods: The hydrogel model was chosen for its accuracy in mimicking the human gracilis muscle and neurovascular pedicle in size and anatomy. This model is cost effective and has no negative ethical ramifications. Results: This synthetic model was used successfully to gain skills in donor pedicle dissection, specifically in gracilis free flap donor pedicle dissection. The skills acquired included simulation of the identification of

the neurovascular pedicle from skin incision and dissection of the artery, nerve, and vein at the pedicle. Conclusions: To our knowledge, this is the first description of a synthetic model for donor pedicle dissection in free flap reconstructive surgery. This is a powerful educational tool for the safe translation of skills to the clinical setting.

1:15   Gaze Patterns of Normal and Microtia Ears Pre and Post Reconstruction
Steven Losorelli, MD, Palo Alto, CA; Julia Chang, BS, Stanford, CA; Sam P. Most, MD, Stanford, CA; Kay Chang, MD, Stanford, CA; Mai Thy Truong, MD, Stanford, CA

Educational Objective: To understand how eye tracking can be used as an objective measure for attentional gaze preferences. Here, we demonstrate how gaze preferences may help guide auricular reconstruction by identifying and comparing anatomical subunits that are most viewed in a normal ear, a microtia ear and a reconstructed ear.

Objectives: The ear is a complex form making auricular reconstruction challenging. Eye tracking has been used to measure attentional differences for surgical outcomes. No prior research has characterized gaze patterns of normal and microtia ears pre- and post-reconstruction. Study Design: Descriptive experimental study. Methods: Eye tracking technology was used to characterize gaze preferences. 71 nonmedical participants viewed images of 5 patients with unilateral microtia. Profile faces and isolated ears including normal ears and microtia ears pre- and post-reconstruction were shown. Quantifiable metrics including total time of fixation and fixation count were measured. Results: The ear received significantly more attention in lateral view of the face than the features of the "central triangle" (eyes, nose, mouth), irrespective of microtia status ($p < 0.01$). A microtia ear causing notable facial asymmetry in frontal profile drew more attention (1.1s) compared to the contralateral normal (.09s) and post-reconstruction ear (.19s; $p < 0.01$); microtia causing less facial asymmetry did not draw viewer attention. On closeup view of all ears, the helix and concha were consistently the most dominant subunits. Conclusions: The ear received significant visual attention when participants' viewed the lateral profile face. When a microtia ear caused facial asymmetry, the ear received more attention, which is restored to baseline level after reconstruction. Eye tracking is a way to measure attention and success of microtia reconstruction and to identify key auricular subunits that attract gaze preference.

1:20   Early Predictors of Discharge to Inpatient Rehabilitation after Free Tissue Transfer for Head and Neck Reconstruction
Ayan Kumar, MD, Philadelphia, PA; Megha Chandna, BS, Philadelphia, PA (Presenter); Meghan Crippen, MD, Philadelphia, PA; Eric Barbarite, MD, Philadelphia, PA; Howard Krein, MD PhD, Philadelphia, PA; Ryan Heffelfinger, MD, Philadelphia, PA

Educational Objective: At the conclusion of this presentation, the participants should have a better understanding of what patient characteristics may predispose

to inpatient rehabilitation after free flap surgery.

Objectives: Patients undergoing head and neck free flap reconstruction (HNFFR) may have significantly impacted baseline functional status requiring inpatient rehabilitation after discharge. We sought to identify patient and procedure characteristics predictive of discharge destination. Study Design: Single institution chart review. Methods: Patients undergoing elective HNFFR between 03/2019-07/2022 were reviewed for discharge destination. Those discharged to rehabilitation versus home were compared across patient/procedure characteristics and physical/occupational therapy metrics. Significance was assessed via bivariate and multivariable analyses. Results: Of the 366 patients, 63 (17.2%) required inpatient rehab postoperatively. Patients discharged to rehab versus home were significantly older (70.4 [11.6] vs. 64.7 [12.3] years; p equals 0.001), more likely to lack family assistance (30.2% vs 6.6%; p less than 0.001), require baseline assistance for activities of daily living (33.3% vs 10.2%; p less than 0.001), have baseline cognitive dysfunction (17.5% vs 6.9%; p equals 0.007), and weight bearing status change (55.6% vs 39.6%; p equals 0.020). There was no significant difference in gender, surgical indication, presence of stairs at home, or use of tracheostomy, tube feeds, or assistive devices. Those requiring rehab had significantly longer length of stay (12 [11.0] vs 6.5 [3.6] days; p less than 0.001). Following logistic regression, lack of family assistance most strongly predicted discharge to rehab (OR=7.14; p less than 0.001). Conclusions: Certain patient factors predict the need for discharge to rehabilitation after HNFFR. Perioperative identification of these factors may facilitate patient counseling and discharge planning with potential to reduce hospital length of stay and further optimize patient care.

1:25 - 1:35   **Q&A**

Thursday 1:35 - 2:20
Rhinology/Allergy Panel
Ballrooom B

1:35 - 2:15   **PANEL: RHINOLOGY/ALLERGY**
Office Based Rhinologic Procedures in the Era of Scarce OR Time
Moderator:
     Eric W. Wang, MD FACS, Pittsburgh, PA
Panelists:
     Amber U. Luong, MD PhD FACS, Houston, TX
     Murugappan Ramanathan, MD FACS, Baltimore, MD
     Kevin C. Welch, MD, Chicago, IL

2:15 - 2:20   **Q&A**

2:20 - 2:45   **BREAK/VISIT EXHIBITORS/VISIT POSTERS**

THURSDAY 2:45 - 5:15
PEDIATRIC OTOLARYNGOLOGY AND GENERAL SESSION
BALLROOM B

Moderators:
Sarah N. Bowe, MD FACS, Ft. Sam Houston, TX
Sukgi S. Choi, MD FACS, Boston, MA

2:45   **Do Children with Previous Covid Infection Have Hyposmia?**
Beatrice Bacon, BS, Buffalo, NY; Jackline Fahmy, BS, Buffalo, NY; Austin Knorz, BS, Buffalo, NY; Michele Carr, DDS MD PhD, Buffalo, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to describe anosmia or hyposmia in children who have had Covid infection compared to those who have not.

Objectives: Our goal was to see if children with a history of Covid infection had sub-clinical hyposmia. Study Design: Prospective observational study. Methods: Consecutive patients at a pediatric otolaryngology clinic aged 5-17 years were recruited. Demographics including gender, race, use of nasal topical medications (NTM), previous nasal surgery including adenoidectomy (NSA), and previous COVID-19 infection were collected. Each child performed a test of their sense of smell using the Pediatric Smell Wheel (PSW, Sensonics Intl, USA) under direct supervision and scores were compared. Results: 260 children were included; mean age 10.1 yr (95% CI 9.7-10.5), 128 (49.2%) female and 132 (50.8%) male. 65 (25%) used steroid nasal sprays, 100 (38.5%) had undergone adenoidectomy, and 36 (13.8%) had other nasal surgery. 120 (46.2%) had a previous COVID-19 infection. The COVID+ and COVID- groups were the same for age, gender, race, use of NTMs, and previous NSA (p greater than .05). Mean PSW score was 7.8 (95% CI 7.6-8.0), median 8, ranging from 2 to 11. Total PSW score was 8.0 for the COVID- group and 7.6 for the COVID+ group (p=.005). There was no significant difference in total PSW scores based on gender, race, use of NTMs, previous NSA. Linear regression showed previous Covid infection was significantly negatively associated with total PSW score (beta -0.636, p=.006) with age significantly positively associated (beta 0.122, p<.001). Conclusions: Children with a history of Covid infection performed more poorly identifying odors than children without a Covid history. More study into the rates of pediatric anosmia related to Covid infection is needed.

2:50   **Factors Associated with Pediatric Polysomnography Completion: A Citywide Retrospective Investigation**
Rose Chryssanthi Dimitroyannis, BA, Chicago, IL; David Fenton, BS, Chicago, IL; Nicholas Lin, BA, Chicago, IL; Rachel Nordgren, PhD, Chicago, IL; Laura Petrauskas, MD, Chicago, IL; Andrea Shogan, MD, Chicago, IL

Educational Objective: At the conclusion of this presentation, the participants

should be able to identify patient demographic and clinical information which may be predictors of polysomnography compliance in pediatric patients undergoing adenotonsillectomy.

Objectives: Polysomnography (PSG) remains the gold standard for diagnosing and quantifying sleep disordered breathing (SDB) before adenotonsillectomy (AT). Patient compliance with ordered PSGs is variable and inadequately studied. The objective of this study was to assess our institution's compliance and determine significant factors for noncompliance. Study Design: This single center retrospective cohort study was conducted from January 2015 to December 2020 in pediatric patients who underwent ATs. Methods: Patient demographics and clinical information such as OSA severity, distance from home to testing center, prior history of PSG order and completion were collected. Data regarding the patients' AT, such as admittance after surgery, emergency visit postoperatively, and 30 day followup were gathered. Outcome variables regarding preoperative polysomnography completion were recorded. Descriptive statistics were performed using Wilcoxon signed rank tests. Results: 12.1 percent (52/428) of preoperative PSG orders remained incomplete in patient charts. Across cohorts with complete and incomplete preoperative orders, patients with incomplete orders were more likely to be non-Hispanic White (15 percent vs. 5 percent, p less than 0.01), less likely to have severe OSA (25 percent vs. 50 percent, p less than 0.01), and more likely to have a postoperative ED visit (27 percent vs. 13 percent, p equal to 0.01). We found no significant difference in preoperative PSG completion with distance to the testing center (p equal to 0.072). Conclusions: Our preliminary results suggest that patient demographic and clinical information may be key predictors of PSG compliance. Future work is necessary to evaluate the associations of our findings.

2:55   Surgical Intervention for Neonatal Hearing Loss Decreases Lifetime Incident Adverse Life Events and Medical Comorbidities that Disproportionately Affect Underrepresented Minorities
Natalie Michal Perlov, BS, Philadelphia, PA; Marwin Li, BS, Philadelphia, PA; Jordan Atary, BA, Philadelphia, PA; Zachary D. Urdang, MD/PhD, Philadelphia, PA; Rebecca Chiffer, MD, Philadelphia, PA

Educational Objective: At the conclusion of this presentation, the participants should be able to explore 1) the association of surgical otologic treatment for neonatal hearing loss (HL) with incident lifetime adverse life events (ALEs) and medical comorbidities (MCBs); and 2) otologic surgical intervention distribution among underrepresented minorities.

Objectives: Evaluate if surgical otologic intervention for any type of neonatal hearing loss (HL +/- intervention) affects the odds of incident adverse life events (ALEs) and medical comorbidities (MCBs). Study Design: Retrospective cohort database study. Methods: Electronic medical record data from the TriNetX Research Network was queried for neonates with congenital, sensorineural, conductive, and mixed hearing loss (ICD10 H90, H91) between ages 0-1 year. Patients were further stratified

by presence or absence of surgical intervention at any point following diagnosis, including mastoidectomy, cochlear implantation, tympanoplasty, and stapedectomy (ICD10 1010163, 69930, 1010183, 1010191, 1014244). Primary outcome was defined as the odds of new ALEs (Z55-Z65) or MCBs (M00-M99, E00-E89, G00-G99, K00-K95, I00-I99, F01-F99, C00-D49) at any point given HL treatment status [Odds ratio with 95% confidence interval, (OR, 95% CI)]. Patient demographics were compared by chi squared test. Results: HL+ intervention neonates (n=1,403) had 0.70-lower odds (95% CI: 0.57-0.87) of experiencing any new ALE versus HL- intervention (n=112,044). Compared to HL- intervention, HL+ intervention experienced lower odds of MCBs such as digestive dysfunction and cancer. Covariate analysis of demographics showed that 18% of HL- intervention patients were African-American/Black, compared to 13% of HL+ intervention patients (p < 0.0001). Conclusions: This study highlights the potential impact of surgical intervention of neonatal hearing loss on social determinants of health. Our findings emphasize the need to enhance equity for neonatal hearing screening and early access to surgical otologic intervention for neonatal hearing loss.

3:00   Surgical Outcomes by Early Airway Endoscopy Findings after Pediatric Staged Laryngotracheoplasty

Helene Dabbous, MD, Dallas, TX; Romaine F. Johnson, MD MPH, Dallas, TX; Stephen R. Chorney, MD MPH, Dallas, TX; Yann-Fuu Kou, MD, Dallas, TX

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how early airway endoscopy findings can affect time to decannulation and the number of interventions needed to achieve decannulation.

Objectives: Tracheostomy decannulation is the goal of double staged laryngotracheoplasty (dsLTP). The primary objective of this study was to determine how often initial postoperative airway endoscopy findings after stent removal predict the likelihood of decannulation. Secondary objectives assessed timing of decannulation, and number of endoscopic interventions needed after dsLTP. Study Design: A case series with chart review. Methods: We included children who underwent dsLTP with suprastomal stent at a tertiary children's hospital between 2008 and 2021. Rates of decannulation, time to decannulation, and number of interventions needed after dsLTP were recorded for children with high or low grade stenosis at the time of the first bronchoscopy after stent removal. Results: A total of 66 children met inclusion. Mean age at reconstruction was 4.2 years (SD: 3.3), 89% had high grade stenosis and 98% had a preoperative tracheostomy. Successful decannulation occurred for 74% of children (N=49) at a median of 12.9 months (IQR: 8.8-21.3) and 33% of children (N=22) were decannulated within 12 months of surgery. For children with low grade stenosis at the first endoscopy after stent removal, 84% were able to be successfully decannulated compared to 36% of children with high grade stenosis (P=.001). After dsLTP, children with residual high grade stenosis required a mean of 7.5 interventions (SD: 3.3) compared to 4.3 interventions (SD: 2.4) for children

that had low grade postoperative stenosis (P<.001). Further, among decannulated children, high grade stenosis at initial bronchoscopy necessitated more endoscopic procedures (7.0 vs. 4.0, P=.02). Time to decannulation was no different between children with high and low grade early postoperative stenosis (21.9 vs. 18.0 months, P=.65). Conclusions: Higher grade stenosis identified on the first airway endoscopy after suprastomal stent removal is correlated with lower decannulation rates and more postoperative endoscopic interventions. While time to decannulation was not impacted by early stenosis grade, surgeons might utilize these early airway findings to prognosticate possible surgical success.

3:05   **Disparities in the Presentation and Management of Pediatric Retropharyngeal Abscess**
Dante J. Nicotera, BS, St. Louis, MO; Aseeyah Islam, BS, St. Louis, MO; Yupeng Liu, BS, St. Louis, MO; Kate Dunsky, MD, St. Louis, MO; Judith E.C. Lieu, MD MSPH, St. Louis, MO

Educational Objective: At the conclusion of this presentation, the participants should be able to identify differences in the presentation and management of retropharyngeal abscess (RPA) in pediatric patients. Participants should be able to identify potential predictors of disparities in RPA management.

Objectives: Differences in management and outcomes of otolaryngologic diseases may reflect inequities among the social determinants of health (SDOH). This study aims to investigate disparities in presentation and outcomes of retropharyngeal abscess (RPA) among 245 pediatric patients. Study Design: Retrospective cohort analysis. Methods: A financial database was searched for pediatric patients with RPA from 2010 to 2021. Charts were reviewed for demographics, presenting history, physical examination, diagnostic results, surgical findings, and hospital course. Chi square and logistic regression were used to investigate associations between these variables. Results: Among patients presenting for RPA (n=245), Black patients were less likely to undergo surgical management than non-Black patients (53.2% vs 71.6%, p=0.009). Among patients who received surgery (n=154), Black patients had higher cross-sectional abscess area on CT (6.4 cm2 vs 3.8 cm2, p=0.014) and a higher rate of changes in antibiotic regimen (22.2% vs 6.9%, p=0.019). There were no differences in presenting symptoms between Black patients and non-Black patients in any cohort. On physical exam, Black patients had decreased findings of restricted neck range of motion (69.4% vs 82.8%, p=0.025). Black patients had a lower rate of treatment with antibiotics prior to hospital admission (19.4% vs. 54.4%, p<0.001). Patient insurance and patient zip code mean income were not associated with any significant differences in presentation or management. Conclusions: Lower rates of preadmission antibiotics and larger abscess on CT imaging among Black patients may suggest disparities in utilization and access to primary and urgent care, resulting in presentation to tertiary care at more advanced stages of disease.

3:10   **Otolaryngology Residency Programs Adapt to USMLE Step 1 Transitioning to Pass/Fail**

Om U. Patel, BS, Birmingham, AL; Lydia C. Yang, BS, Birmingham, AL (Presenter); Andrew Bonner, BS, Birmingham, AL; William Haynes, BS, Birmingham, AL; Ishant Yadav, BS, Birmingham, AL; Nicholas Van Wagoner, MD PhD, Birmingham, AL; Jessica Grayson, MD MS, Birmingham, AL

Educational Objective: At the conclusion of this presentation, the participants should be able to understand what residency programs will look for in potential candidates applying into the field of otolaryngology.

Objectives: In February 2020, the National Board of Medical Examiners (NBME) announced that the United States Medical Licensing Examination (USMLE) step 1 licensing examination would change to pass/fail (P/F). After implementation, many believe that USMLE step 2 CK will become an important metric for students applying into otolaryngology (ENT). The purpose of this study is to determine factors important to resident selection after these changes. Study Design: A survey containing 15 questions related to resident selection practices and how changing USMLE step 1 to P/F would impact future resident selection was designed. Methods: It was distributed to the program directors (PD) of all ENT residency programs accredited by the Accreditation Council for Graduate Medical Education (ACGME). Results: 29.5% of PDs responded. 66% (95% CI: 51.1%-78.4%) PDs felt that changing step 1 scoring would not lead to students being more prepared for clinical rotations. 55% of PDs believe class rank will increase in significance (95% CI: 35.7%-64.3%). There was also a trend towards an increase in the importance of the ranking of the step 2 CK exam, which had a 10.67 (CI: 9.01-12.32) rating prior to changes in step 1 scoring and changed to 7.8 (CI: 6.00-9.68) after changes to step 1 scoring. Conclusions: The changes in the step 1 scoring are likely to lead to increasing importance on other objective measures like class rank or step 2 CK. This may defeat the intended purpose put forth by the NBME. Therefore, further guidance on measures correlated with student performance as a resident will be integral to the selection process.

3:15   **A Low Cost Multiple Use Peritonsillar Abscess Model: A New Model and Systematic Review**

Azmi Marouf, MD, Cleveland, OH; Benjamin Johnson, MD, Cleveland, OH; Claudia I. Cabrera, MD MS, Cleveland, OH; Akina Tamaki, MD, Cleveland, OH; Sarah Mowry, MD, Cleveland, OH

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the different PTA models used in the training of junior physicians and available data on their validity and trainee's confidence after their use.

Objectives: To examine a novel reusable and low cost simulation model for peritonsillar abscess incision and drainage during the annual department's boot camp and to systematically review literature on published PTA simulators. Study Design: A

prospective cohort and a systematic review of the literature. Methods: Junior residents and fourth year medical students were asked to participate by training on the simulator model and to fill out a 5 point Likert scale questionnaire. The model consisted of a manikin head (with teeth and an opening that mimics trismus) and PTA model anchored to the manikin head in the tonsillar region using a magnet system. A systematic review was performed to search articles on PTA simulation. Results: 30 individuals participated in the training. 40% of participants had no previous experience in PTA incision and drainage. The median confidence scores before and after training were 2 and 4, respectively (P <0.001). The systematic review yielded 11 studies 2 of which were cadaveric. The majority of models developed the PTA into pus-like material. The percentage improvement in the confidence level ranged from 38% to 245%. Conclusions: The improvement in confidence level reported by most studies, including ours, was overwhelmingly positive. However, lack of transfer validity evidence and commercial availability of these models leave the authors unable to provide concrete recommendations on their use in training. Larger and randomized control investigations need to be conducted to better understand the benefits of these models on surgical skills development and patient outcomes.

3:20   Rank Equity Index Unveils Lack of Parity in Advancement in Academic Otolaryngology

Sulgi Kim, BA, Chapel Hill, NC; Taylor Stack-Pyle, BS, Durham, NC; Sarah M. Russel, MD MPH, Chapel Hill, NC; Robert A. Buckmire, MD, Chapel Hill, NC; Christine E. DeMason, MD, Chapel Hill, NC; Rupali N. Shah, MD, Chapel Hill, NC

Educational Objective: At the conclusion of this presentation, the participants should be able to understand that there is a lack of rank parity for women and that underrepresented minority composition has not changed within the last 20 years in academic otolaryngology.

Objectives: In the last two decades, there has been increased emphasis on having a diverse demographic of faculties to better reflect the composition of the general population. Our objective was to investigate changes in gender and ethnic distribution in academic otolaryngology from 2000-2020 and report rank equity index (REI) to assess representation in advancement. Study Design: An observational study utilizing a publicly available database. Methods: We obtained the number of fulltime faculty by rank, self-identified gender, and ethnicity in otolaryngology departments from 2000 to 2020 from the publicly available data collected by the Association of American Medical Colleges. Rank equity index (REI) was calculated by dividing percent representation of a higher faculty rank to percent representation of a lower rank. Results: Women comprised 21.5% of faculty in 2000 vs. 36.5% in 2020. REI for women professor/associate were 0.47 in 2000 vs. 0.61 in 2020, and associate/assistant 0.5 in 2000 vs. 0.75 in 2020. REI for men were professor /associate 1.18 in 2000 vs. 1.12 in 2020, and associate/assistant 1.1 in 2000 vs. 1.16 in 2020. Underrepresented minorities (URM), including American Indian/Alaska Native, Black/African American, Hispanic/Latinx, and Hawaiian/Other Pacific Islander, comprised

3.66% of faculty in 2000 to 4.44% in 2020. Conclusions: In the last twenty years, women entering academic otolaryngology has increased. However, a persistent lack of rank equity parity remains, indicating a constraint of representation to the lower ranks. There has been no significant improvement in URM faculty representation. Further research should aim to understand the drivers of disparities in faculty rank equity index and barriers to recruitment and retention of URM faculty in academic otolaryngology.

3:25   **Couples Matching in Otolaryngology: Examining Success and Stress of Couples Match Applicants**
Ashley Diaz, BS, Chicago, IL; David Fenton, BS, Chicago, IL; Gena Lenti, MD, Seattle, WA; Elizabeth A. Blair, MD, Chicago, IL; Jeanne Farnan, MD, Chicago, IL; Andrea Shogan, MD, Chicago, IL

Educational Objective: At the conclusion of this presentation, the participants should be able to understand success rates, geographic preferences, and application preparation between ENT applicants in the couples match and traditional match.

Objectives: The National Residency Match Program (NRMP) considers a successful couples match when both parties match, regardless of location. The goal of this study was to compare the success rates, geographic preferences, and application preparation between ENT couples match and traditional match applicants. Study Design: An anonymous two sectioned REDCap survey was designed for standard and couples match residents. Methods: Our survey was distributed via email to all 106 United States allopathic otolaryngology program residents from January 1, 2022, to April 1, 2022. Results: Eighty-four standard applicants and 28 couples match applicants completed the survey across 45 (43%) otolaryngology residency programs. 57% (16/28) of couples match participants felt the need to make compromises to ensure dual matching. Compared to standard applicants, fewer couples match participants reported matching in their top three ranked programs (64% vs. 79%) (p = 0.06). 24 (86%) of couples matched within their top 10 programs compared to 84 (100%) of their standard counterparts (p <0.01). Over 20% of respondents (6/28) matched into programs more than 100 miles away from their partner. When asked how to rate match success on a scale of 1-10, couples match respondents reported significantly lower success than their standard match counterparts (7.18 +/- 3.31 vs. 8.67 +/- 1.78) (p=0.03). Conclusions: We found that couples match applicants had differing prematch priorities, similarly high perceived levels of stress, and significantly lower post-match satisfaction than their standard applicant counterparts. Our study highlights the unique needs and stressors of medical students who are applying to otolaryngology through the couples match.

3:30 - 3:40   **Q&A**

3:40 - 4:20   **PANEL: GENERAL**
Women in Otolaryngology: Challenges in Sponsorship and Negotiation
Moderator:
Sandra Y. Lin, MD, Madison, WI
Panelists:
Yuri Agrawal, MD, Baltimore, MD
Bob Bordone, JD, Cambridge, MA
Janice L. Farlow, MD PhD, Columbus, OH
Dana M. Thompson, MD FACS, Chicago, IL

4:20 - 4:30   **Q&A**

4:30 - 5:15   **Speed Networking**
In this speed networking session, you'll have the opportunity to meet and network with some of the most prominent and experienced society and departmental leaders. The roundtable setting will provide a comfortable and casual backdrop to foster valuable dialogue between you, your peers and leaders in Otolaryngology.
Moderator:
Ralph B. Metson, MD FACS, Boston, MA
Mentors:
Generalist or Specialist?
Andrew H. Murr, MD FACS, San Francisco, CA
Jay P. Willging, MD, Cincinnati, OH

Advocacy
Sujana S. Chandrasekhar, MD FACS, New York, NY
Kathleen L. Yaremchuk, MD MSA, Detroit, MI

Academic Career Trajectory
M. Boyd Gillespie, MD MSc FACS, Memphis, TN
Gregory A. Grillone, MD FACS, Boston, MA

Resident/Fellow Research
Marlan R. Hansen, MD, Iowa City, IA
Peter H. Hwang, MD FACS, Palo Alto, CA

Work/Life Balance
Michael M. Johns III, MD, Los Angeles, CA
Samuel H. Selesnick, MD FACS, New York, NY

DEI Challenges
Romaine F. Johnson, MD MPH, Dallas, TX
Dana M. Thompson, MD FACS

Mentors & Mentees
Stacey L. Ishman, MD MPH, Cincinnati, OH

Sonya Malekzadeh, MD FACS, Washington, DC

Young Faculty Research
Shawn D. Newlands, MD PhD MBA FACS, Rochester, NY
P. Ashley Wackym, MD FACS FAAP, New Brunswick, NH

Career Paths
Myles L. Pensak, MD FACS, Cincinnati, OH
Peter A. Weisskopf, MD FACS, Phoenix, AZ

Career Paths
Harold C. Pillsbury, MD FACS, Chapel Hill, NC
Willard C. Harrill, MD FACS, Hickory, NC

Women's Pathways in OTO
Catherine K. Hart, MD, Cincinnati, OH
Maie A. St. John, MD PhD, Los Angeles, CA

5:15   **ADJOURN**

FRIDAY, MAY 5, 2023

7:00 - 8:00   Triological Society Annual Business Meeting (Fellows only) - Ballroom B

Friday Concurrent Sessions 8:05 - 8:50
Facial Plastics panel
Ballroom B

8:05 - 8:45   **PANEL: FACIAL PLASTICS**
Revitalizing the Face: A Look at Advancements in Facial Reanimation
Moderator:
    Travis T. Tollefson, MD MPH, Sacramento, CA
Panelists:
    Patrick J. Byrne, MD FACS, Cleveland, OH
    Theresa A. Hadlock, MD, Boston, MA
    Lisa E. Ishii, MD MHS, Baltimore, MD
    P. Daniel Knott, MD, San Francisco, CA

8:45 - 8:50   **Q&A**

Friday Concurrent Sessions 8:50 - 9:35
Rhinology/Allergy Session
Ballroom B

Moderators:
Anand Devaiah, MD FACS, Boston, MA
Troy D. Woodard, MD FACS, Cleveland, OH

8:50   **A Computational Analysis on the Effects of Normal Nasal Morphological Variations on Odorant Diffusion in the Olfactory Cleft during Sniffing**
Ryan M. Sicard, BS, New York, NY; Dennis O. Frank-Ito, PhD, Durham, NC

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the impact of nasal vestibule morphologic variations on the transport and deposition of three odorants in the olfactory cleft while sniffing.

Objectives: Conductive mechanisms are typically not given priority in evaluating olfaction. This study investigates the role of nasal vestibule morphological variations on odorants reaching the olfactory cleft. Study Design: Retrospective computational study using three dimensional modeling in eight healthy subjects with normal nasal anatomy. Methods: Subject specific nasal models were created using computed tomography images. Each subject's unilateral nasal cavity was classified according to their nasal vestibule morphology: standard or notched. Inspiratory simulations were

performed at 30L/min to simulate turbulent sniffing conditions using computational fluid dynamics. Odorant transport simulations were then performed for limonene, dinitrotoluene, and acetaldehyde. Results: Olfactory flux for all three odorants was greatest in standard phenotypes with a median of 9.100pg/cm^2-s for acetaldehyde, 3.71x10^(-2)pg/cm^2-s for limonene, and 1.15x10^(-4)pg/cm^2-s for dinitrotoluene. Diffusion of odorant flux for standard phenotypes was elevated in the inferior, anterior area of the olfactory cleft. On the other hand, diffusion of odorant flux was elevated in the more medial and superior regions of the olfactory cleft for notched subjects. Conclusions: Each odorants' physical properties impact its transport to the olfactory cleft. Additionally, nasal morphological variations impact the region of maximal odorant deposition in the olfactory cleft.

8:55   **Automated Sinonasal Computed Tomography Segmentation for Applications in Rhinology: A Deep Learning Framework**

Ameen Amanian, MD MSE, Vancouver, BC Canada; Aseem Jain, BS, Baltimore, MD (Presenter); Yuliang Xiao, BSE, Baltimore, MD; Manish Sahu, PhD, Baltimore, MD; Francis Creighton, MD, Baltimore, MD; Andrew Thamboo, MD, Vancouver, BC Canada; Masaru Ishii, MD PhD, Baltimore, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to 1) describe the current applications of medical imaging in rhinology; 2) understand the utility of a novel deep learning platform in automatically segmenting structures of the nasal cavity on sinonasal computed tomography scans; and 3) explain the significance of this framework for integration into surgical navigation systems and using automated large volume segmentations for quantifying large population variations.

Objectives: The integration of nasal cavity segmentations with surgical navigation systems requires manual segmentation and is prone to variability. The objective of this study was to construct a deep learning platform which using sinonasal computed tomography (CT) scans automatically segments critical structures within the nasal cavity. Study Design: Retrospective cohort study. Methods: Manual annotations of the regions of interest were performed on 17 CT scans of healthy adults via an open source software, 3D slicer. We included three ground truth segmentations: nasal septum, inferior turbinate (IT), and maxillary sinus (MS). Deep Atlas, a neural network, was thereafter used for training of a segmentation network. The Dice Similarity Coefficient (DSC) and Average Hausdorff Distance (AHD) were calculated to quantify the performance of the DL framework on the test CT volumes. Results: The training was performed on 12 CT scans and predictions were assessed on 5 test CT volumes. DSC of the segmentation network for MS, IT, and septum were 0.88, 0.92, and 0.94 respectively. The AHD for the three respective structures were 0.47mm, 0.34mm, and 0.42mm. A heat map demonstrated decreased accuracy alongside the anterior and posterior aspect of the septum as well as the posterior end of the IT. Conclusions: Traditional segmentation frameworks require many training scans. However, we have developed a novel platform for automatically seg-

menting structures of the nasal cavity achieving submillimeter accuracy meanwhile using a low number of training scans. This pipeline has the potential to interface with image guidance navigation systems, augment preoperative planning, and construct statistical shape models to quantify population variations.

9:00 Five Year EuroQol 5 Dimension (EQ-5D) Outcomes after Endoscopic Sinus Surgery
Katherine Clarke Tashman, BS, Boston, MA; Dara R. Adams, MD, Boston, MA; Thad W. Vickery, MD, Boston, MA; George A. Scangas, MD, Boston, MA; Ralph Metson, MD, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the impact of endoscopic sinus surgery on quality of life among patients with chronic rhinosinusitis.

Objectives: The EuroQol 5 dimension (EQ-5D) is a general health survey that is quick to administer, widely used internationally among many medical specialties and directly convertible to health utility values. We aim to describe the five year EQ-5D outcomes among patients who undergo surgical treatment for chronic rhinosinusitis (CRS). Study Design: Prospective observational cohort study. Methods: Patients with CRS completed the EQ-5D questionnaire preoperatively and annually for five years following endoscopic sinus surgery. Paired t test univariate analyses and McNemar's tests were used to compare preoperative and postoperative scores. Mixed effects modeling was used for multivariate analysis. Results: Among 667 patients enrolled at baseline, 474 (71.1%) and 231 (34.6%) completed the postoperative surveys at one and five years, respectively. The frequency of patients reporting problems in the EQ-5D domains of pain/discomfort and anxiety/depression decreased at one year postoperatively (74.8% vs. 50.4%, and 48.7% vs. 33.3%, respectively, p<0.05) and was sustained at five years (59.3% and 37.7%, respectively, p<0.05). Frequency of problems reported in the usual activities domain decreased at one year (31.3% vs. 18.1%, p<0.001) and was sustained through year four (18.7%, p=0.002), but rebounded at year five (26.0%, p=0.90). The self-care and mobility domains did not improve postoperatively. Controlling for other variables, male sex (p<0.001) and the presence of nasal polyps (p=0.01) were associated with significantly improved EQ-5D values over time. Conclusions: Patients with chronic rhinosinusitis experience improvements in health related quality of life that are measurable via the EQ-5D instrument and sustained at five years.

9:05 Proton Radiation Therapy for Nasopharyngeal Carcinoma: A Population Based Analysis
Arash Abiri, BS, Irvine, CA; Jonathan Pang, BA, Irvine, CA; Khodayar Goshtasbi, MD, Irvine, CA; Sina J. Torabi, MD, Irvine, CA; Edward C. Kuan, MD MBA, Irvine, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the effectiveness of proton and photon radiotherapy

in treating nasopharyngeal carcinoma.

Objectives: Local treatment for nasopharyngeal carcinoma (NPC) commonly entails a regimen of radiotherapy. Due to its proximity to critical neurovascular structures, radiation toxicity presents a challenge. Proton radiotherapy (PRT) is associated with reduced toxicity and shows promise as an alternative to photon radiotherapy (XRT). Herein, we evaluated the therapeutic efficacies of PRT and XRT in NPC patients. Study Design: Retrospective database study. Methods: The 2004-2017 National Cancer Database was queried for patients with NPC who were treated with PRT or XRT. Using propensity score matching (PSM), patients who received XRT were matched in demographics and clinical characteristics with those who received PRT. Overall survival (OS) was assessed with Cox proportional hazards regression and Kaplan-Meier analysis. Results: Of 6175 patients (6130 XRT, 45 PRT), 1719 (27.8%) were female with a mean age of 56.5 +/- 13.4 years. PSM resulted in 86 patients, with a large representation of T4 (58.1%), N2 (36.0%), or M0 (91.9%) cancers. Patients who underwent PRT were, on average, farther away from their treatment facility than XRT patients (103.9 vs. 72.4 miles, p<0.001). The 2 year OS rates for the PRT and XRT cohorts were 82.1% and 48.1%, respectively (p=0.001). Additionally, PRT was associated with significantly reduced mortality compared to XRT (hazard ratio [HR]: 0.305; 95% CI: 0.152-0.611). Conclusions: NPC patients demonstrated greater improvements in OS following curative intent PRT compared to XRT. Prospective trials consisting of larger and more heterogeneous patient populations are warranted to better delineate the therapeutic efficacy of PRT and direct its appropriate use as a primary radiation modality for NPC patients.

9:10   Comparing Healthy Sinonasal Samples with Sterile Saline Does not Provide Evidence for a Distinct Healthy Sinonasal Microbiota
Natalie Dorin, BS, Birmingham, AL; Do Yeon Cho, MD, Birmingham, AL

Educational Objective: At the conclusion of this presentation, the participants should be able to understand that caution is needed in interpreting studies of the low biomass samples of healthy microbiota.

Objectives: The primary aim of this study was to identify distinct sinonasal microbiota in healthy human subjects by comparing matched negative controls (sterile saline) provided in the operating room (OR). Study Design: A prospective cohort study by sampling amples of nine healthy human subjects who underwent bilateral inferior turbinate submucosal resection (ITSR) in the OR with nine matched negative controls of sterile saline simultaneously. Methods: Human sinonasal mucus swab samples from middle meatus (MM) of healthy (non-sinusitis) human subjects were collected with matched negative controls (sterile normal saline in the OR table). All swab samples were stored in the identical DNA/RNA preserving agent. An identical DNA extraction kit was used to extract DNA, and the samples were then sent to the microbiome core for 16S rRNA gene amplicon sequencing. For bacterial quantification, 16S qPCR using 16S-CCF-qPCR-F and 16S-926R-qPCR-R primers with SYBR FAST

qPCR Master Mix (Kapa Biosystems) was performed. Genomic DNA from P. aeruginosa PAO1 was used to generate a standard curve for quantifying genome copies per ml sample. Results: Samples from 9 healthy human subjects (Male to female = 4:5) were collected who went for bilateral ITSRb. We measured the total bacterial burden in all human and control samples. The bacterial concentrations (gene copies/ml) in human subjects were significantly higher than sterile saline samples (gene copies/ml, sterile saline = 1.5×10^3+/-788 vs human MM = 7.9×10^5+/-3.6×10^5, p=0.04). The taxonomic profiles of human MM samples were similar to sterile saline samples, corroborated with principal coordinates analyses. The taxa (genus level) only present in sterile saline are as follows: Lachnospiraceae UCG-009, Angelakisella, Selenomonas 3, Craurococcus, Thermomonas, MB-A2-108_unclassified (phylum: actinobacteria). Based on similarities of taxonomic profiles between these two low biomass samples (human MM vs. sterile saline), the introduction of contaminant DNA likely occurred during the processing (e.g., DNA extraction or library preparation). Conclusions: Identifying the healthy sinonasal microbiota is extremely challenging because the healthy bacterial biomass can be low, and reagents contain significant contaminating DNA. Additional work is needed that uses stringent sampling, extensive controls, absolute abundance measurements, and perhaps novel approaches. Caution is required in interpreting the studies comparing high (e.g., infectious disease) vs. low (e.g., healthy) biomass samples.

9:15   Does Hypoglossal Nerve Stimulation Surgery Improve Rhinologic Quality of Life? A Cohort Study

Glen Edwin D Souza, MD, Philadelphia, PA; Alexander Duffy, MD, Philadelphia, PA; Andrew Corr, BS, Philadelphia, PA; Maurits Boon, MD, Philadelphia, PA; Colin Huntley, MD, Philadelphia, PA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the relationship between hypoglossal nerve stimulation and change in rhinologic quality of life.

Objectives: To study the effect of hypoglossal nerve stimulation (HNS) on rhinologic and sinonasal quality of life in patients with obstructive sleep apnea. Study Design: Prospective cohort study. Methods: This IRB approved study included a cohort of patients who were administered the Sinonasal Outcomes Test SNOT-22 questionnaire before undergoing HNS between 2020 and 2022. The SNOT-22 questionnaires were readministered to these patients after a minimum interval of 6 months following HNS surgery to compare the change in rhinologic subdomain as overall SNOT-22 scores by using a paired t-test using SPSS-27. Demographics and changes in the rhinologic subdomain and the overall SNOT-22 scores have been reported. Results: Twenty-one patients with pre- and post-HNS surgery SNOT-22 scores were included in the study. The mean age at surgery was 60.36 years, there were more males than females, with the ratio being 1.33:1. The mean BMI was 27.8. The SNOT-22 score was measured at a mean of 147 days before and 474 days after surgery. The mean overall SNOT-22 score before surgery was 28.53, which reduced significantly to

18.15 following surgery (p=0.014). The rhinologic subdomain of the SNOT-22 score has 8 questions, with the lowest collective score being 0 and the highest collective score being 40. The rhinologic subdomain scores also reduced significantly from a mean of 6.4 before surgery to 2.8 after surgery (p=0.002) even though only 3 (14%) patients in this cohort had a previous diagnosis of chronic rhinosinusitis. Conclusions: While it is well known that upper airway stimulation improves the sleep related quality of life in patients with obstructive sleep apnea, in a first of its kind study, we found that HNS persistently improved rhinologic as well as overall sinonasal outcomes. While this study is limited by its small sample size, further studies are required to assess the change in the sinonasal quality of life following HNS surgery.

9:20   Improvement of Postnasal Drip and Chronic Cough Outcomes in Chronic Rhinitis Patients Treated with Temperature Controlled Radiofrequency Neurolysis of the Posterior Nasal Nerve
Daniel Gorelik, BS, Houston, TX; Jumah G. Ahmad, MD, Houston, TX (Presenter); Samuel E. Razmi, BS, Houston, TX; Masayoshi Takashima, MD, Houston, TX; Yin Yiu, MD, Houston, TX; Omar G. Ahmed, MD, Houston, TX

Educational Objective: At the conclusion of this presentation, the participants should be able to gain an understanding about the significance of postnasal drip and chronic cough in chronic rhinitis patients and the impact of temperature controlled radiofrequency neurolysis on these symptoms.

Objectives: To evaluate the contribution of postnasal drip (PND) and chronic cough (CC) to the symptomatology of patients with chronic rhinitis treated with temperature controlled radiofrequency (TCRF) neurolysis of the posterior nasal nerve (PNN), and correlation of PND and CC scores with components of the reflective total nasal symptom score (rTNSS). Study Design: Pooled data from three prospective studies: two single arm studies and the index active treatment arm of a randomized controlled trial. Methods: Adult patients with a baseline rTNSS of 6 or greater were treated with TCRF neurolysis at nonoverlapping regions of the PNN. PND and CC symptoms were evaluated on a 0-3 scale, where 3 represents severe symptoms. Results: Data from 228 patients (57.9% female, 42.1% male) were included. Mean baseline rTNSS was 8.1 (95% CI, 7.8-8.3), which decreased to 3.3 (95% CI, 3.0-3.6) at 6 months. At baseline, 97.4% of patients had PND and 80.3% had CC. Mean baseline PND and CC symptom scores were 2.5 (95% CI, 2.4-2.6) and 1.5 (95% CI, 1.4-1.7), respectively. At 6 months, this had decreased to 1.2 (95% CI, 1.1-1.4) and 0.5 (95% CI, 0.4-0.6), respectively. Spearman correlation coefficients with rTNSS components (rhinorrhea, congestion, itching, sneezing) were 0.16-0.22 for CC and 0.19-0.46 for PND, indicating weak to moderate correlation. Conclusions: PND and CC contribute to the symptomatology of chronic rhinitis patients and are significantly improved after TCRF neurolysis of the PNN. Inclusion of PND and CC symptoms in a chronic rhinitis assessment instrument could provide additional information for characterization of the disease state and outcomes after treatment.

9:25 - 9:35   Q&A

9:35 - 10:00   **BREAK/VISIT EXHIBITS/VISIT POSTERS**

Friday Concurrent Sessions 10:00 - 11:30
Otology Session
Ballroom B

10:00 - 10:40   **PANEL: OTOLOGY**
Product Development, New Technology and Commercialization in Otology/Neurotology
Moderator:
     Bradley W. Kesser, MD, Charlottesville, VA
Panelists:
     Marlan R. Hansen, MD, Iowa City, IA
     Hinrich Staecker, MD PhD, Kansas City, KA
     Aaron D. Tward, MD PhD, San Francisco, CA

10:40 - 10:45   **Q&A**

Moderators:
Soha N. Ghossaini, MD FACS, Forest Hills, NY
Alan G. Micco, MD FACS, Chicago, IL

10:45   **Post-Pandemic Changes in Google Searches for Otologic Symptoms of COVID-19**
Joshua K. Kim, BS, Durham, NC; Karen Tawk, MD, Orange, CA; Jonathan M. Kim, BS, Orange, CA; Hamid R. Djalilian, MD, Orange, CA; Mehdi Abouzari, MD PhD, Orange, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to figure out the trend of Google searches for common Covid related otologic symptoms during the pandemic.

Objectives: To highlight the variation in search volume and trends for otologic symptoms of COVID-19 infection before and after the pandemic. Study Design: Retrospective database analysis. Methods: Search for common otologic symptoms of COVID-19 infection were collected through Google Trends. All web hits within the United States were gathered from 2018 to the end of 2021. Changes in volume were identified two years before or after the pandemic start date of March 2020. A two tailed Mann-Whitney U test identified differences in mean search interest, as well as the magnitude of that difference (r). Results: Search interest rose significantly for headache, dizziness, tinnitus, and vertigo. The highest effect was calculated for headache ($r=0.59$, $p<0.001$) and dizziness ($r=0.55$, $p<0.001$). Tinnitus ($r=0.41$, $p<0.001$) trailed closely behind with a moderately high increase, and searches for vertigo ($r=0.23$, $p<0.001$) were only slightly boosted. Conversely, searches for hearing loss ($r=0.33$, $p<0.001$) and migraine ($r=0.26$, $p<0.001$) experienced mild declines following the pandemic. Neck pain ($r=0.01$, $p<0.001$) experienced no change in

relative search interest. Conclusions: Otologic symptoms were important conse-
quences of COVID-19 infection. Regardless, they were overlooked, and received less
attention compared to other otolaryngologic symptoms such as anosmia or taste
loss.

10:50 **Patient Factors Associated with Missed Appointments in Adult Patients
with Sensorineural Hearing Loss in an Otolaryngology Clinic**
Preetha Shuba Velu, BA, Boston, MA; Carolyn Wilson, BA, Boston, MA;
Jessica Levi, MD, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants
should be able to identify socioeconomic factors that affect followup rates in adult
patients with sensorineural hearing loss.

Objectives: Sensorineural hearing loss (SNHL) requires close followup to manage
long term sequelae of the disease. This study aims to identify patient related factors
associated with missed followup appointments in SNHL to better understand barri-
ers to care. Study Design: Retrospective chart review. Methods: We performed a
retrospective chart review of 7,845 patients 18+ years old who received a diagnosis
of SNHL from 5/1/2015 to 12/31/2021. We collected demographic data such as sex,
race, language, and education status, along with demographics of followup ap-
pointments with otolaryngology and audiology such as the timing of appointments.
Results: The mean number of canceled and no show appointments for the total
cohort was 1.99 (SD = 3.34). There was a statistically significant difference between
mean number of missed appointments between patients of different races. Middle
Eastern patients had the highest mean number of missed appointments at 2.87
(p-value less than 0.001). Spanish speakers had the highest mean number of missed
appointments (p-value less than 0.001). Patients whose highest grade completed
was high school or a GED had significantly higher mean missed appointments (p-val-
ue less than 0.001). However, appointment characteristics such as month of initial
appointment had no significant correlation with number of missed appointments
(p = 0.146). Conclusions: Patient demographic characteristics such as race, prima-
ry language, and education had a significant association with a higher number of
missed followup appointments in SNHL. Language barriers and education levels can
play a role in patients' understanding of proper followup for SNHL.

10:55 **Validity of the Department of Defense's Medical Examination Review
Board Audiometric Screening for Military Service in the United States: A
Comparative Analysis Using Formal Audiometric Testing**
Katelyn M. Waring, BS, Bethesda, MD; Emma N. Beer, MD, San Antonio, TX;
Jason K. Adams, MD, San Antonio, TX; Julieta F. Scalo, PhD, San Antonio,
TX; John P. Marinelli, MD, San Antonio, TX; Isaac D. Erbele, MD, San
Antonio, TX

Educational Objective: At the conclusion of this presentation, the participants
should be able to understand the need for an effective hearing test to determine

a military recruit's qualification status to serve, appreciate the data that shows a disagreement between the current audiogram screening test and the gold standard audiometry, possible causes for this discrepancy, and continued research goals that will better the hearing portion of the screening test to allow for the most qualified recruits to enter the military.

Objectives: United States military recruits must undergo extensive medical screenings before being deemed eligible to serve. This is conducted through the Department of Defense Medical Examination Review Board (DoDMERB). The hearing assessment component has been scrutinized for its ability to assess eligibility for service. Here, we evaluate concordance between DoDMERB screening and gold standard audiometry. Study Design: Nonexperimental national cross-sectional study. Methods: Concordance statistics were used to compare results from 134 recruits. Because a single ear can be disqualifying, each ear was evaluated separately. Pearson correlation coefficients and multilevel logistic regression were used to identify discrepancies at each frequency. Results: Gold standard exams disqualified 27 (20%) recruits while DoDMERB screening disqualified 116 (87%). With gold standard audiometry, 89 (77%) of these were found to be qualified, with 96.4% (95% CI, 81.7%-99.9%) sensitivity and 16.0% (9.6%-24.4%) specificity (p<0.001). Evaluating ears separately, sensitivity and specificity were 85.3% (68.9%-95.0%) and 52.6% (46.0%-59.1%, p<0.001). Frequencies that best predicted discordance were 500 Hz (OR: 1.13, 95% CI: 1.08 - 1.17) and 2000 Hz (OR: 1.06, 95% CI: 1.02 - 1.10), with respective Pearson correlation coefficients of 0.161 and 0.339. Conclusions: DoDMERB auditory screening disqualifies significantly more recruits from military service than gold standard audiometry. Discrepancies occur most frequently at 500 and 2000 Hz, suggesting possible systematic bias. Additional research to identify and correct sources of measurement error could improve screening efficiency.

11:00   Implications of Defect Size in Patients with Superior Canal Dehiscence Syndrome
Alejandro Garcia, MD, Boston, MA; Janice Jung, MD, Boston, MA; Krish Suresh, MD, Boston, MA; Yohan Song, MD, Boston, MA; Daniel J. Lee, MD, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand why defect size in patients with semicircular canal dehiscence (SCDS) could have an effect in symptom management.

Objectives: SCDS presents with a range of vestibular and auditory symptoms. However, the impact of semicircular canal defect size on symptom improvement after surgery is not clear in large patient samples. The objective of this study is to characterize the relationship between defect size and symptoms in SCDS patients. Study Design: Retrospective cohort study. Methods: Patients who underwent SCD repair between 2000-2021 were included. Two independent raters measured defect size on preoperative coronal computed tomography (CT) (slice thickness=0.5 mm). Demographics and symptoms were compared across subjects. Comprehensive symp-

tomatology data was analyzed pre and postoperatively. Results: 136 patients with SCDS were included (mean age: 58.12 (SD, 10.24). Most common defect location was arcuate eminence (43.38%) and lateral upslope (42.65%) of the superior canal. Mean length was 3.72 mm (SD: 1.56) and there was no statistical difference between raters. There was an increased odds of having a larger dehiscence in patients presenting with primarily auditory compared to vestibular symptoms (aOR=1.28, p=0.044). We observed a statistically significant air bone gap (ABG) closure at 500 Hz that correlated positively with defect size (r2=0.08, p=0.0019). Conclusions: SCDS patients with larger defect sizes could have increased symptomatology at presentation and differences in symptomatic and objective resolution. Larger defects were associated with primarily auditory symptoms and smaller defects were more likely to be associated with vestibular symptoms as the chief complaint.

11:05   Automated Extraction of Distances between the Eustachian Tube and the Internal Carotid Artery
Aseem Jain, BS, Baltimore, MD; Ameen Amanian, MD, Baltimore, MD; Francis Creighton, MD, Baltimore, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to 1) describe current techniques for imaging review prior to eustachian tube dilation; 2) explain the importance of quantifying the distance between ICA and ET and determining this location along the ET in risk stratification of patients undergoing dilation procedures; and 3) highlight the first automated tool for determining the minimum distance value and location between the ICA and ET that can be integrated into the clinical setting.

Objectives: Determining the distance between the eustachian tube (ET) and internal carotid artery (ICA) is important to determine candidacy for ET dilation. Our group previously developed a pipeline for automated segmentation of the ET. Here we expand this pipeline to determine the minimum distance between ET and ICA and locate its position. Study Design: Retrospective cohort study. Methods: A previously validated algorithm was used to segment 60 ETs and ICA pairs and generate corresponding point clouds. The pipeline identified and calculated the minimum Euclidean distance point (MDP) between ICA and ET by measuring the distance between each surface point on the ET and ICA volume and selecting the smallest value. MDP location was defined by its distance from the nasopharyngeal ET opening. This was determined by creating a curved line through the ET center and measuring the distance from ET opening to the MDP. The total length of the ET was calculated from this line. Manual measurements were performed for validation. Results: Mean minimum distance from ET to ICA was 1.73mm [1.15mm - 4.2mm] and was located 40.3mm [23mm - 53mm] from the nasopharyngeal end of the ET. The mean error compared to manual segmentation was 0.11mm (std=0.09, p=0.24). Average length of the ET was 48mm [28.5mm - 60.6mm]. Conclusions: The proposed pipeline can accurately determine the minimal distance between the ET and ICA and its location along the ET. This method can help to ensure proper and safe selection of

patients for ET dilation.

11:10   **Payer Negotiated Pricing of Vestibular Schwannoma Care**
Afash Haleem, BA, Newark, NJ; Samantha Shave, BS, New Brunswick, NJ; Alejandro Garcia, MD, Boston, MA; Helen Shih, MD, Boston, MA; Marc Bussiere, MSc, Boston, MA; Daniel J. Lee, MD, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the variation in private payer negotiated prices of services associated with the management of vestibular schwannomas (VS) in the United States.

Objectives: To determine disclosure of and variation in private payer negotiated prices of services associated with the management of vestibular schwannomas (VS) in the United States. Study Design: Retrospective cross-sectional study. Methods: Current procedural terminology (CPT) codes for services associated with VS management were identified by otolaryngologists, a radiation oncologist, and a medical physicist. Payer negotiated prices for these codes were aggregated from a data sourcing company consolidating hospital price transparency files and normalized to account for geographic differences in the cost of care delivery. Variation in prices across centers was determined using across center ratios (ratio between 90th and 10th percentile normalized median prices for each service across centers). Variation in negotiated prices within centers across payers was determined using within center ratios (ratio between 90th percentile and 10th percentile negotiated prices for each service within a given center). Results: 30 services and associated CPT codes were identified for diagnosis, surgical treatment, radiation therapy, and adjunct therapy. Amongst 1326 hospitals, 81.7-91.5% disclosed prices for imaging, audiologic evaluation, and vestibular therapy, 10.1-10.7% disclosed prices for surgical care, and 35.7% disclosed prices for radiotherapy care. Across center ratios ranged from 3.7 (vestibular therapy) to 18.7 (postoperative appointments). Median within center ratios ranged between 1.7 (radiotherapy clinical treatment plan, IQR: 1.3-2.6) to 4.7 (CT head without contrast, IQR: 2.2-9.2). Conclusions: Payer negotiated pricing for VS care varies widely across centers and between commercial payers. This may be explained by differences in market power between both centers and payers. Further studies should investigate factors that account for this variation.

11:15   **Tympanostomy Tube Placement in the Era of Clinical Practice Guidelines**
Anastasia Jermihov, MD, Fort Sam Houston, TX; Jason Adams, MD, San Antonio, TX (Presenter); Marisa Earley, MD, San Antonio, TX; Sarah Bowe, MD, San Antonio, TX; Isaac Erbele, MD, San Antonio, TX

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss the impact the 2013 clinical practice guidelines for tympanostomy tubes had on surgical intervention.

Objectives: This study aims to explore the impact of the 2013 clinical practice

guideline (CPG) for tympanostomy tubes (TT) on surgical rates following guideline publication. Study Design: Retrospective review. Methods: The number of pediatric tympanostomy tube cases performed for Tricare beneficiaries between 2010 and 2016 were reviewed based on a current procedural terminology database review. Cases performed between 2010 and 2012 were compared to those performed between 2014 and 2016. The data was further categorized by care delivered in military versus civilian practices. Results: Excluding 2013, there were 101,000 pediatric tympanostomy tubes placed during the study period, with 57,400 performed in the three years prior to guideline publication and 45,500 performed the three years after. This was a 21% decrease (incident density ratio (IDR)=0.81, 0.8-0.83 (95% CI), p<0.0001). A total of 28,100 were performed in military practices, and 92,200 were performed in civilian practices. There was a 20% decrease in cases performed at military facilities (IDR=0.81, 0.79-0.83 (95% CI), p<0.0001) and 21% in civilian practices (IDR=0.82, 0.78-0.86 (95% CI), p<0.0001). The difference in these IDRs was not statistically significant (p=0.91). Conclusions: There was a decline in the number of tympanostomy tubes placed after the release of the 2013 clinical practice guidelines in both military and in civilian practices. This study indicates the guidelines altered clinical practice.

11:20 - 11:25   Q&A

Friday Concurrent Session 11:30 - 12:00
General Panel
Ballroom B

11:25 - 12:05   PANEL IN CONJUNCTION WITH

SUO | SOCIETY OF UNIVERSITY OTOLARYNGOLOGISTS HEAD & NECK SURGEONS

Residency Education: The Great Debate
Moderator:
   Steven D. Pletcher, MD, San Francisco, CA
Panelists:
   Jeffrey M. Bumpous, MD FACS, Louisville, KY
   Stacey T. Gray, MD FACS, Boston, MA
   Judith E.C. Lieu, MD MSPH, St. Louis, MO
   Andrew H. Murr, MD FACS, San Francisco, CA

12:05 - 12:10   Q&A

12:10   ADJOURN

12:10   LUNCH/VISIT EXHIBITORS/VISIT POSTERS

Friday, May 5, 2023

7:00 - 8:00   Triological Society Annual Business Meeting (Fellows Only) -
Ballroom B

FRIDAY CONCURRENT SESSIONS 8:05 - 9:35
HEAD & NECK SESSION
304/306

Moderators:
Nathan W. Hales, MD BA FACS, San Antonio, TX
Jennifer L. Long, MD PhD, Los Angeles, CA

8:05   **Virtual 3D Specimen Mapping in Head and Neck Oncologic Surgery**
Alexis Miller, BS, Nashville, TN; Kavita Prasad, BA, Nashville, TN; Kayvon F. Sharif, BA, Nashville, TN; Kyle Mannion, MD, Nashville, TN; James S. Lewis, MD, Nashville, TN; Michael C. Topf, MD, Nashville, TN

Educational Objective: At the conclusion of this presentation, the participants should be able to understand postoperative virtual 3D specimen mapping, including the feasibility, usefulness, and future possibilities.

Objectives: To determine the feasibility and utility of virtual mapping of three dimensional (3D) specimen models. Study Design: To improve communication between surgeons and pathologists, we implemented a 3D scanning protocol with virtual 3D specimen mapping using computer aided design (CAD) software. Methods: A prospective study was performed to incorporate virtual specimen mapping into an existing 3D scanning protocol. A structured light 3D scanner captured the topographical surface of oncologic specimens prior to surgical pathology processing. Margin sampling sites and inking were mapped onto the virtual 3D models using CAD software. The annotated 3D specimen maps were shared with the pathologist and surgeon postoperatively. Feasibility surveys were administered. Results: A series of 17 head and neck oncologic specimens, mostly squamous cell carcinoma of the oral cavity (53%) or larynx (24%), were 3D scanned and virtually mapped. The resulting 3D specimen maps were electronically distributed to head and neck surgeons and pathologists prior to histologic analysis and release of the final pathology report. 3D specimen maps explicitly assisted in the communication of a focally positive or close margin in 4 of 17 cases. The majority of physicians (71%) found this system to be helpful in understanding margin location. Conclusions: Virtual 3D specimen maps provide a useful visual representation of the specimen to guide postoperative communication of margin status following head and neck oncologic surgery. 3D specimen maps help both surgeons and pathologists understand the location of margins and facilitate communication of positive or close margins.

8:10   **Perioperative Complications among Head and Neck Surgery Patients with COVID-19**
Ann Marie Martin, BS, Washington, DC; Zachary T. Elliott, BS, Greenville, NC; Jessica H. Maxwell, MD MPH, Washington, DC; Matthew L. Pierce, MD, Washington, DC

Educational Objective: At the conclusion of this presentation, the participants

should be able to understand the perioperative risks associated with COVID-19 among those undergoing head and neck surgery.

Objectives: The purpose of this investigation was to understand the risks of perioperative complications associated with COVID-19 among those undergoing head and neck surgery. Recent studies indicate that preoperative COVID-19 infection poses increased risk for postoperative complications for other fields. However, to date there has not been data showing the effect of COVID-19 on complication rates for HNC. Here, a large database was employed to assess if perioperative COVID-19 increased the risk of perioperative complications among those undergoing HNC surgery. Study Design: Retrospective database. Methods: A retrospective investigation was conducted using TriNetX, a multi-institutional, national health research network. Among 115 million individuals, subjects were undergoing HNC surgery from 01/2020 to 09/2022 were identified using ICD and CPT codes. Thirty day surgical and medical complications were assessed for those diagnosed with COVID-19 infection from five days before to five days after surgery. These were compared to COVID-19 negative subjects undergoing HNC surgery during the same time period. Cohorts were propensity score matched by age, sex, race, prior treatments, and 25 common comorbidities. Results: Perioperative COVID-19 was present in n=6,512 and was absent in n=5,865 subjects that underwent HNC surgery. Subjects with perioperative COVID-19 were at increased risk (odds ratio) for death OR=1.67 (95% confidence interval (CI): 1.06, 2.63), wound dehiscence OR=1.26 (CI: 1.02, 1.56), ventilator support OR=1.77 (CI: 1.32, 2.36), tracheostomy OR=1.93 (CI: 1.69, 2.21), and transfusion requirement OR=2.09 (CI: 1.68, 2.61). There was no statistically significant increased risk for surgical site hematoma, surgical site fistula, surgical site infection, pneumonia, acute renal failure, UTI, altered mental status, MI, CVA, and vasopressor requirement. Conclusions: This large populational study suggests HNC patients are at increased risk for death and several pulmonary related perioperative complications. This study employed a large, diverse population and is the first study to address this clinical question. Limitations include the retrospective nature of the study and the descriptions inherent to each ICD and CPT code.

8:15   Data Modeling Using Social Determinants of Health in Nasopharyngeal Carcinoma: Prognosis and Recommended Therapy
Jacob C. Bloom, MD, Boston, MA; Pratima Agarwal, MD, Boston, MA; Anand Devaiah, MD, Boston, MA; Masanao Yajima, PhD, Boston, MA; Simu Huang, MS, Boston, MA; Yinfeng Zhou, MS, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how socioeconomic determinants of health impact survival of patients with nasopharyngeal carcinoma outside of the traditional tumor lymph node metastasis (TNM) staging system.

Objectives: Nasopharyngeal cancer (NPC), is a malignancy for which the recommended therapy is radiation. The most widely accepted guidelines for treatment and prognosis is the tumor lymph node metastasis (TNM) staging system. This study

utilizes entries from the Surveillance, Epidemiology, and End Results (SEER) program to propose data modeling algorithms outside of standard TMS staging to maximize treatment efficacy and improve prognosis counseling. Study Design: We performed a retrospective cohort study based on the SEER database for NPC, comparing the treatment received to the recommended NCCN guidelines and survival outcomes. Demographic variables included sex, age, race, insurance, median household income, AJCC 7 stage, education, employment rates, English language proficiency, and geographical location. Methods: We used novel variable analyses to uncover patient socioeconomic characteristics which have not been considered in previous staging and management guidelines. All outcomes were based on logistic modeling. Results: Stage, age at diagnosis, and insurance status impact whether a patient receives standard treatment. Older patients are less likely to be given standardized treatment (p = 0.0002). Patients with stage IV are also less likely to receive standard therapy. Increased age also increases likelihood of death (p = 0.02). Conclusions: The current treatment TNM staging system for NPC is an effective but incomplete method for providing patients with individualized treatment and prognosis counseling. Our data shows that there are other factors which predict a patient's prognosis and thus could impact recommended treatment including age and insurance status. We hope to use this data model to develop more accurate, individualized staging guidelines for patients.

8:20   **The Efficacy of Four Dimensional Computerized Tomography for Uncertain Adenoma Localization in Primary Hyperparathyroidism: A Case Series and Meta-Analysis**
Anton Warshavsky, MD, Tel Aviv, Israel; Raz Rubin, MD, Tel-Aviv, Israel; Nidal Muhanna, MD PhD, Tel-Aviv, Israel; Elena Izkhakov, MD PhD, Tel-Aviv, Israel; Adi Brenner-Ullman, MD, Tel-Aviv, Israel; Gilad Horowitz, MD, Tel-Aviv, Israel

Educational Objective: At the conclusion of this presentation, the participants should be able to discusses the effectiveness of using a four dimensional computerized tomography (4DCT) as a second line imaging for localizing parathyroid adenoma in situations when US or MIBI failed to localize or there is a discordance between the two imaging modalities.

Objectives: The use of four dimensional computerized tomography (4DCT) for parathyroid adenoma localization in primary hyperparathyroidism is gaining worldwide popularity. This modality is usually applied as a second line imaging in undetermined adenoma locations. Therefore, the study aim was to analyze the efficacy of 4DCT in uncertain adenoma localizations. Study Design: A case series and meta-analysis of all studies on primary hyperparathyroidism cases that first line imaging failed to locate the adenoma. Methods: All eligible patients from the XXX medical center were analyzed and consolidated into a case series. Publications that reported outcomes of 4DCT localization studies on a per patient or per gland basis were included in this meta-analysis. Results were regarded as true positive if 4DCT localized the correct position of the hyper-functioning gland and biochemical reso-

lution achieved following surgery. Results: A total of 14 retrospective studies that included 416 suitable patients met the inclusion criteria. The sensitivity for correct quadrant localization ranged from 53% to 100% with a random effect model result of 90.37% (95% confidence interval [CI]: 76-99%). The quadrant positive predictive value (PPV) ranged from 52%-100% with a random effect of 82% (95% CI: 73-89%). The sensitivity of 4DCT for correct side lateralization ranged from 80-100% with a random effect of 88% (95% CI: 82-93%). The side PPV ranged from 63-95% with a random effect of 87% (95% CI: 77-95%). Conclusions: 4DCT is an effective second line study for uncertain parathyroid adenoma localization. This imaging may preclude a formal neck exploration.

8:25   Subcategorization of Perineural Invasion Stratifies Oral Cavity Squamous Cell Carcinoma Prognosis
Nicholas Fung, MD, Pittsburgh, PA; Cara M. Fleseriu, BS, Pittsburgh, PA; Randall J. Harley, BS, Pittsburgh, PA; Nayel Khan, MD, Philadelphia, PA; Seungwon Kim, MD, Pittsburgh, PA

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss the clinical utility of subcategorization of perineural invasion (PNI) in the prognostication of oral cavity squamous cell carcinoma (OCSCC).

Objectives: To evaluate if subcategorization of perineural invasion (PNI) improves the prognostic resolution of the American Joint Committee on Cancer, 8th Edition (AJCC8) staging system in oral cavity squamous cell carcinoma (OCSCC). Study Design: Single institution prospective study. Methods: OCSCC tumor specimens from patients seen at a tertiary care institution who underwent primary surgical resection between January 2019 and June 2021 were sorted into three PNI categories: intratumoral, peripheral and extratumoral. The prognostic effect of these PNI categories were assessed through Kaplan-Meier, Cox regression and logrank testing using recurrence free survival (RFS) and overall survival (OS) as a primary and secondary outcome respectively. Results: A total of 158 patients were examined. The median followup time was 23.8 months. PNI subcategorization stratified RFS rates when compared to PNI negative patients (p=0.007), with extratumoral patients having the worst RFS rates, followed by peripheral and intratumoral. Extratumoral PNI was associated with a 4-fold increase in the risk of recurrence when compared to PNI negative disease (hazard ratio (HR): 4.08, 95% confidence interval (CI):1.66-10.03). PNI subcategorization demonstrated more robust trends when evaluating OS, with significantly worse OS for peripheral (HR: 3.49, 95% CI: 1.41-8.63) and extratumoral (HR: 5.84, 95% CI: 2.06-6.62) PNI when compared against PNI negative disease. Conclusions: Subcategorization of OCSCC tumors into extratumoral, peripheral and intratumoral PNI stratifies RFS and OS in an incremental fashion when compared to patients with PNI negative disease. This pilot study suggests that there may be added benefit in subcategorization of PNI in the prognostic evaluation of OCSCC.

8:30   A Nationwide Analysis of Factors Associated with Delayed Treatment Package Time in Head and Neck Cancer by Subsite

Richard A. Raad, MD MS, Chicago, IL; Sarah Grond, MD, Chicago, IL; Adam Morin, , Chicago, IL; Kerstin Stenson, MD, Chicago, IL; Samer Al-Khudari, MD, Chicago, IL; Mihir K. Bhayani, MD, Chicago, IL

Educational Objective: At the conclusion of this presentation, the participants should be able to identify factors associated with delayed treatment package time in head and neck cancer.

Objectives: Our primary aim was to compare the impact of various demographic, socioeconomic, disease related, and treatment related factors on delayed treatment package time (TPT) among various HNC subsites. Study Design: Using the National Cancer Database (NCDB), we identified a cohort of patients who underwent surgery and completed adjuvant radiation for HNC between 2004 and 2016. Methods: Patients were separated into two groups based on a TPT less or greater than 100 days. Various factors were assessed for correlations with TPT. Patients were then grouped by subsite and similar analyses were performed to identify differences in these factors between the subsites. Results: Of the patients included, 37,582 (37.1%) had a delayed TPT of more than 100 days. Patients with delayed TPT were more likely to be female, non-Hispanic black, treated at an academic center, and have Medicaid or no insurance (p<0.001). Patients who had a neck dissection and those with more advanced pathologic stage were also more likely to be in this group (p<0.001). Likewise, these patients were more likely to be treated with adjuvant chemotherapy, had a longer mean hospitalization, and were more likely to be readmitted within 30 days of discharge (p<0.001). Further analysis did reveal some notable differences between subsites. Within the oral cavity, prior demographic associations with a delayed TPT persisted for oral tongue and buccal subsites (p<0.001). However, age, sex, race, and treatment facility were not associated with TPT for lip cancers. The association with adjuvant chemotherapy persisted across all oral cavity subsites (p<0.001), whereas pathologic stage, length of hospitalization, and readmissions did not. Among oropharynx primaries, females, blacks, and those with Medicaid were more likely to have delayed TPT. Within this group, adjuvant chemotherapy remained associated with delays only for tonsil primaries (p<0.001). Notably, negative HPV status was also associated with delayed package time in the oropharynx but was not predictive for nasopharynx primaries. Significant associated demographic factors among hypopharynx, larynx, and salivary gland subsites paralleled those of the overall cohort. Delays associated with addition of adjuvant chemotherapy, neck dissection, and hospital readmission also persisted among these sites, except in the nasopharynx. Conclusions: Using nationwide data and a liberal TPT of 100 days, this study demonstrated that over one-third of HNC patients treated with adjuvant radiation experience treatments delays. A number of demographic, socioeconomic, disease related, and treatment related factors are associated with this, although their impact varies between subsites. These findings identify particular vulnerable patient populations, who may benefit most from initiatives aimed at streamlining

HNC care.

8:35   **Characterization of the Impact of Combinatorial Anti-PD-1 and TLR-8 Agonism in Head and Neck Squamous Cell Carcinoma Using Single Cell RNA Seq and Multiplex Staining Imaging Techniques**
Daniel Armando Ruiz Torres, MD, Boston, MA; Jillian Frances Wise, PhD, Boston, MA; Osman H. Yilmaz, MD, Boston, MA; Moshe Sade-Feldman, PhD, Boston, MA; Shannon Stott, PhD, Boston, MA; Daniel Lawrence Faden, MD, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the impact of combinatorial anti-PD-1 and TLR-8 agonism in the tumor microenvironment of head and neck squamous cell carcinoma.

Objectives: To elucidate the impact of combinatorial anti-PD-1 and TLR-8 agonism in the tumor microenvironment of head and neck squamous cell carcinoma. Study Design: Interventional, open label, phase 1b clinical trial. Methods: Fresh tumor biopsies were collected from three patients with HNSCC pre- and post-treatment with a TLR-8 agonist and PD-1 inhibitor and underwent single cell RNA-seq/TCR and custom multiplex staining with CD4, CD8, PD-1, CD19, CD20, CD16, CD56, CD163, LAMP3, alfa-SMA, Ki67, CK and DAPI. Results: Two patients had clinical responses to treatment by RECIST criteria. Spatial transcriptomics revealed a lower percentage of myeloid cells as well as lower signal intensities for CD16+ and CD163+ cells in post-treatment biopsy of all patients. Responders had a substantial increase in CD8 T em in the post-treatment biopsy together with higher tumor infiltrating CD8 T cells. Upon VDJ sequencing, responders showed expansion of the exhausted TRM-CXCL13+ T cell clone. Inversely, the nonresponder showed an expanded clone of gamma delta T cells. The nonresponder also had a lower percentage of B cells and plasmablasts in addition to lower CD20 signal intensities in the stroma and higher tumor infiltrating CD163 cells after treatment. Conclusions: TLR-8 agonist + PD-1 inhibitor therapy modifies the tumor immune microenvironment resulting in higher tumor infiltrating CD8 T cells and expansion of the exhausted TRM-CXCL13+ T-cell clone in response to treatment.

8:40 - 8:50   **Q&A**

8:50 - 9:30   **PANEL: HEAD & NECK**
Immunotherapy in H&N Cancer: What We Know, What We Think We Know and What We Really Don't
Moderator:
  Maie A. St. John, MD PhD FACS, Los Angeles, CA
Panelists:
  Robert Haddad, MD, Boston, MA
  Sana Karam, MD PhD, Aurora, CO
  Luc G.T. Morris, MD FACS, New York, NY

9:30 - 9:35   **Q&A**

9:35 - 10:00   BREAK/VISIT EXHIBITS/VISIT POSTERS

FRIDAY CONCURRENT SESSIONS 10:00 - 11:30
SLEEP AND GERIATRIC SESSION IN CONJUNCTION WITH
304/306

Moderators:
Reena Dhanda Patil, MD MBA, Cincinnati, OH
Kourosh Parham, MD PhD, Farmington, CT

10:00   Association between Modified Frailty Index and Postoperative Outcomes of Cricopharyngeal Myotomy
Afash Haleem, BA, Newark, NJ; Sophia Khan, BS, Ewing, NJ; Sree R. Chinta, BA, Newark, NJ; Dhiraj Sibala, BA, Newark, NJ; Michael Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the association between mFI-5 score and cricopharyngeal myotomy complications.

Objectives: The modified frailty index (mFI-5) is a comorbidity based risk stratification tool that has been validated in patients undergoing several surgical procedures. This study investigates the association between mFI-5 score and cricopharyngeal myotomy complications. Study Design: Retrospective database review. Methods: The National Surgical Quality Improvement Program (NSQIP) database was queried for patients who underwent cricopharyngeal myotomies between 2005 and 2018. The mFI-5 was calculated for each patient by assigning one point for each of the following comorbidities: DM, hypertension, CHF, COPD, and dependent health status. Univariate and multivariable analyses were conducted to determine associations between mFI-5 score and postoperative complications. Results: 1,075 patients undergoing cricopharyngeal myotomies were queried, and they were stratified into the following groups: mFI=0 (n=412 [38.3%], mFI=1 (n=452 [42.0%]), and mFI of 2 or greater (n=211 [19.6%]). Univariate analysis showed that patients with higher mFI-5 scores tended to be older and higher ASA class and have a greater proportion of obesity, smoking, dyspnea, and systemic sepsis. Higher mFI-5 was associated with a greater proportion of cumulative surgical complications, cumulative medical complications, pneumonia, myocardial infarction, cumulative morbidity, readmissions, unplanned readmissions, and reoperations. Multivariable analyses found associations between greater mFI-5 score and cumulative morbidity (OR=1.548, CI: 1.011-2.371, p=0.045). Conclusions: This study suggests an association between mFI-5 score and postoperative complications in cricopharyngeal myotomies. mFI-5 score could be evaluated prior to cricopharyngeal myotomy to determine risk of any complication occurring but is not predictive of specific complications.

10:05   The Impact of Age on Functional Outcomes after Supracricoid Laryngectomy

Gabriela L. Lilly, MD, Portland, OR; Rachel Bolognone, MS CCC-SLP, Portland, OR; Donna J. Graville, PhD, Portland, OR; Jennifer March, MD, Portland, OR; Andrew D. Palmer, PhD, Portland, OR; Joshua S. Schindler, MD, Portland, OR

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss the impact of patient age on functional outcomes after supracricoid laryngectomy.

Objectives: Supracricoid partial laryngectomy (SCPL) is an oncologically sound alternative to total laryngectomy. Previous research has suggested that older age is a risk factor for poorer or delayed postoperative outcomes. This study aimed to formally review this in our population. Study Design: Retrospective chart review. Methods: A retrospective review was performed of patients who underwent SCPL between January 2006 and June 2017 at our institution. Data collected included age, disease characteristics, comorbidity index, time to decannulation (TTD) and time to feeding tube (FT) removal (TTFR). Results: 24 patients were included in the study. The patients underwent either cricohyoidoepiglottopexy (CHEP, n=16) or cricohyoidopexy (CHP, n=8). Mean patient age was 62.04 years (range 45-72). All 24 patients were successfully advanced to decannulation at a median of 29 days (range 12-73). All but one of the patients safely resumed an oral diet and had FT removal at a median of 89 days (range 27-468). No correlation was found between age and TTD or TTFR. When grouping patients into young (age 60 or younger, n=9) and old (age greater than 60, n=15), older adults had a significantly longer TTFR (M=70.00 vs M=133.36, p=.007). Comorbidity scores were comparable between the two groups. It was notable that older adults were more likely to have a supraglottic tumor (33% vs 11%) and higher T-stage (53% vs 22%) and were thus more likely to undergo CHP (47% vs 11%). Conclusions: The association between age and delayed functional outcomes in our series did not appear to be the result of chronological age or comorbidity. Instead, this related to more advanced disease and more extensive surgical intervention in older patients.

10:10   Dual Sensory Impairment and Falls in Older Adults

Sahar Assi, MD, Baltimore, MD; Emmanuel Garcia Morales, PhD, Baltimore, MD; Eric Y. Du, BS, Baltimore, MD; Pablo Martinez-Amezcua, MD PhD, Baltimore, MD; Nicholas S. Reed, AuD, Baltimore, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the impact of hearing, vision and dual sensory impairment on falls and fall related outcomes in older adults and appreciate the value of early intervention with sensory aids and fall prevention strategies in this population.

Objectives: Falls are the leading cause of injury in older adults. Hearing and vision impairment may contribute to falls in several ways including decreased situational

awareness. We hypothesize that older adults with dual sensory impairment (DSI) are at greater risk for falls. Study Design: Cross-sectional study from the nationally representative survey of Medicare beneficiaries in the United States (Medicare Current Beneficiary Survey [MCBS]) (2019). Methods: Participants reported their history of a fall, number of falls, and fear of falling (scale 1-6) over the past year. Self-reported hearing and vision impairment were defined as having a little or a lot of trouble vs. no trouble hearing/seeing. DSI was defined as having both vision and hearing impairment. We performed weighted multivariate regressions: robust Poisson (risk ratio) for risk of falling, negative binomial for number of falls, and ordered logistic for fear of falling. Results: Our sample included 12,739 Medicare beneficiaries with sensory and falls data (mean age 71.2, 54.7% female, 11.1% Black). Participants with DSI had a greater risk of falling (RR = 1.41, 95% CI 1.27-1.57), increased number of falls (IRR = 1.95, 95% CI 1.62-2.34), and increased odds of a higher fear of falling score (OR = 1.31, 95% CI 1.04-1.64) over the last year compared to those with no sensory impairment after adjusting for demographic and clinical factors. Conclusions: Older adults with DSI were more likely to fall in the past year compared to those with no sensory impairment. Sensory aids and fall prevention strategies in older adults with DSI may reduce this risk.

10:15   Association between Geriatric Nutritional Risk Index (GNRI) and Postoperative Outcomes of Tracheostomies
Sree Chinta, BS, Newark, NJ; Afash Haleem, BA, Newark, NJ (Presenter); Dhiraj R. Sibala, BS, Newark, NJ; Owais Aftab, BS, Newark, NJ; Darshan Kalola, BS, Newark, NJ; Michael Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD, Newark, NJ

Educational Objective: At the end of this educational presentation, participants should be able to understand the calculation of the geriatric nutritional risk index (GNRI). Based on the components of the GNRI, participants should understand that GNRI is a malnutrition based predictor of morbidity that has value in stratifying geriatric tracheostomy patients by risk of postoperative complications.

Objectives: The geriatric nutritional risk index (GNRI) is a malnutrition based predictor of morbidity that has been validated in several orthopedic and general surgery procedures. This study aims to assess the effectiveness of the GNRI in stratifying geriatric patients who underwent tracheostomies by risk of postoperative complications. Study Design: Retrospective database review. Methods: The National Surgical Quality Improvement Program (NSQIP) database was queried for patients over the age of 65 who underwent tracheostomies between 2005 and 2018. Univariate and multivariable analyses were conducted to determine associations between various levels of GNRI and postoperative complications. Results: 2,401 patients undergoing tracheostomies were stratified into GNRI of less than 92 (n=696 [29.0%]), GNRI 92-97 (n=415 [17.3%]), and GNRI greater than 97 (n=1,280 [53.3%]). Univariate analysis showed that lower GNRI was associated with female gender, Black race, and higher ASA class, and a greater proportion of smoking, diabetes, dyspnea, COPD, open wounds, bleeding disorder, obesity, and steroid use. Lower GNRI was associated

with a higher rate of cumulative wound complications, cumulative medical complications, bleeding requiring transfusion, cumulative morbidity, and extended length of stay. Multivariable analysis showed that patients with higher GNRI had lower odds of cumulative medical complications (OR=0.376, CI: 0.301-0.470, p<0.001), bleeding requiring transfusion (OR=0.535, CI: 0.424-0.675, p<0.001), cumulative morbidity (OR=0.420, CI: 0.336-0.526, p<0.001) and extended length of stay (OR=0.659, CI: 0.461-0.942, p=0.022). Conclusions: This study suggests an association between lower GNRI values and greater odds of cumulative medical complications, bleeding requiring transfusion, cumulative morbidity, and extended length of stay in geriatric patients undergoing tracheostomies. GNRI can be used to stratify geriatric patients by risk of postoperative complications following tracheostomy.

10:20   **Is Thyroidectomy Safe for Geriatric Patients? A Nationwide Study**
Samipya Kafle, BS, New Haven, CT; Trinithas Boyi, MA, New Haven, CT; Benjamin L. Judson, MD MBA, New Haven, CT

Educational Objective: At the conclusion of this presentation, the participants will be able to discuss thyroidectomy outcomes in geriatric patients compared to non-geriatric adults.

Objectives: To characterize perioperative outcomes and complication rates, in geriatric patients undergoing elective thyroidectomy. Study Design: Retrospective cross-sectional analysis utilizing the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) database. Methods: NSQIP was queried for adult patients who underwent elective thyroidectomy between 2016-2018. The population was stratified into three groups by age: non-geriatric adults (18-65 years, "NGAs"), younger geriatric adults (65-75 years, "YGAs"), and older geriatric adults (greater than 75 years, "OGAs"). Demographics, perioperative factors, and outcome variables, such as length of stay and postoperative complications, were compared using chi squared analyses and ANOVA using SPSS. Results: From our study population (n=16,576), a total of 3,597 geriatric patients were identified, of which 78.2% (n=2,812) were YGAs and 21.8% (n=785) were OGAs. The geriatric population was predominantly female (73.6%) and white (59.9%). YGAs experienced shorter operative times than NGAs (115.86 +/- 68.19 min vs. 120.75 +/- 71.46, p=0.004). The total length of stay (1.65 +/- 3.31 days vs. 1.03 +/- 3.73) and readmission rates (4.9% vs. 2.6%) were significantly higher in OGAs compared to NGAs (p<0.001). Compared to NGAs (6.5%), YGAs (8.7%, p<0.001) and OGAs (9.4%, p=0.002) experienced more surgical complications. In contrast, YGAs showed significantly fewer medical complications, namely severe hypocalcemia (2.7% vs. 4.4%, p<0.001), than NGAs. Generally, complication rates were low. Conclusions: Although complication rates in thyroidectomy are higher in geriatric patients than non-geriatric adults, they are still overall low.

10:25 **Obstructive Sleep Apnea, Oxygen Desaturation Index, and Heart Rate Variability**
Anthony Di Ponio, DO, Detroit, MI; Kathleen Yaremchuk, MD, Detroit, MI

Educational Objective: At the conclusion of this presentation, the participants will be able to understand that factors other than apnea hypopnea index, such as oxygen desaturation index and heart rate variability, likely play a role in the diagnosis and management of obstructive sleep apnea.

Objectives: Successful treatment of obstructive sleep apnea has long been attributed to a reduction in the apnea hypopnea index (AHI). However, by limiting the study of OSA to the single measurement of AHI, other important disease metrics are ignored. Episodes of intermittent hypoxemia have been proven to be largely responsible for the complications associated with OSA, making oxygen desaturation index a valuable tool in studying OSA. Uvulopalatopharyngoplasty has been used as an operative technique for patients with OSA, with postoperative surgical success based on the degree of AHI reduction. Gathering pre- and post-surgical polysomnographic information, the goal of this study is to examine the correlation between pre- and post-UPPP autonomic factors, specifically assessing factors such as oxygen desaturation index and heart rate variability, with the goal of determining factors other than AHI that may be correlated with patient centered outcomes. Study Design: Single institution retrospective chart review study. Methods: All patients who underwent UPPP surgery between 2016-2021 with preoperative and postoperative polysomnograms were assessed. Data from their polysomnography reports was collected, including oxygen desaturation index, average heart rate, and heart rate variability, which was then compared with surgical success based off both subjective (Epworth Sleepiness Scale scores) and objective (AHI) measures. Results: A total of 77 patients (52 male, 25 female) were included in this study. There was a significant association between surgical success and ODI difference ($p = 0.0004$) such that for a one unit decrease in the preoperative to postoperative ODI, the odds of surgical success increased by a multiplicative factor of 1.11. There was also a significant association between surgical success and HR variability difference ($p=0.0147$) such that for a one unit decrease from preoperative to postoperative HR variability, the odds of surgical success increased by a multiplicative factor of 1.03. Subjects who had post-UPPP non-hypersomnolent Epworth Sleepiness Scores also saw a larger decrease in ODI from pre-UPPP to post-UPPP compared to subjects in the hypersomnolent range (-8.18 (12.34) versus -3.93 (8.78), respectively). Conclusions: Postoperative improvements in autonomic factors, including ODI and HR variability, have been associated with objective measurements of UPPP surgical success. Based on current knowledge that the hypoxemic events are largely responsible for the complications associated with OSA, oxygen desaturation index may need to play a larger role in the diagnosis and evaluation of OSA.

10:30 **Demographic and Socioeconomic Disparities among Insured Adults Undergoing Sleep Surgery**
Nikolas Block-Wheeler, MD MS, Oakland, CA; Jeanne Darbinian, MS MPH, Oakland, CA; Kimberly Ramirez, BA, Worcester, MA; Austin R. Swisher, BS, Riverside, CA; Megan Durr, MD FACS, Oakland, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize demographic characteristics or potential disparities in access to surgical care for the obstructive sleep apnea population.

Objectives: To determine demographic and socioeconomic characteristics of insured adults with obstructive sleep apnea undergoing sleep surgery. Study Design: A retrospective cohort design of adults with obstructive sleep apnea. Methods: The obstructive sleep apnea (OSA) cohort was identified from 2009 and 2016 in a large community based integrated healthcare system. Those who underwent non-nasal, non-bariatric sleep surgery were identified. Demographics, including self-reported race/ethnicity and Medicaid/state subsidized insurance plans, were collected. The neighborhood deprivation index was used as an environmental measure of socio-economic status. Bivariable and multivariable logistic regression analysis were performed to compare characteristics between OSA cohort members who underwent surgery and those who did not. Results: Among an OSA cohort of 172,216 patients, 2,262 underwent sleep surgery (1.3%). After adjusting for clinical and demographic characteristics in multivariate logistic regression modeling, Hispanic ethnicity, having a non-Medicaid/nonsubsidized insurance type, and being from a less deprived neighborhood were associated with undergoing surgery (p<0.01). Asian/Pacific Islander and Other identifying patients were less likely to undergo surgery (p<0.01). For cohort members with a Medicaid/state subsidized insurance plan, the odds of having surgery were 43% lower compared with those having other types of health insurance plans (p<0.001). Conclusions: Significant demographic and socioeconomic disparities exist among patients with OSA who may choose to pursue sleep surgery. Further research should begin to define and address barriers to access.

10:35 **The Association between Hyoid Motion and Respiratory Effort during Drug Induced Sleep Endoscopy: A Pilot Study**
Manan Hitesh Parekh, BA, Philadelphia, PA; Eric Thuler, MD PhD, Philadelphia, PA; Everett Seay, BS RPSGT, Philadelphia, PA; Brendan Keenan, BS, Philadelphia, PA; Alan Schwartz, MD, Philadelphia, PA; Raj Dedhia, MD MSCR, Philadelphia, PA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the relevance of hyoid dynamics in OSA pathophysiology and understand the relationship between hyoid displacement and respiratory effort during flow limited breathing as captured during drug induced sleep endoscopy.

Objectives: The hyoid has been implicated in both the pathogenesis and surgical

treatment for obstructive sleep apnea (OSA). Drug induced sleep endoscopy (DISE) enables evaluation of upper airway structures via synchronized recordings of endoscopic, physiologic and ultrasonographic data. In this study, we investigated the relationship between hyoid displacement and respiratory effort during obstructive breathing on DISE. Study Design: We conducted a cross-sectional analysis from a prospective cohort of patients undergoing DISE with ultrasound. Methods: A hyoid focused ultrasound imaging and analysis protocol was performed to quantify hyoid displacement. Respiratory effort was measured using a pressure catheter in the retro-epiglottic space and the difference between start inspiration and end inspiration was calculated as the pressure differential. Regression analysis was used to correlate hyoid displacement and pressure differentials. Results: Fifty-eight breaths were analyzed from a cohort of ten patients undergoing DISE. The cohort was older (68.8 +/- 8.8 years), predominantly male (70%), and overweight (29.8 +/- 3.0 kg/m2) with moderate to severe OSA (29.4 +/- 12.9 events/hr). For individual breaths, mean hyoid displacement was 4.87 mm (+/- 2.39 mm) and mean pressure differential was 15.6 cm H2O (+/- 9.71 cm H2O). Pressure differential was strongly correlated with hyoid displacement (r=0.813, p less than 0.001). In clinical terms, for every 1 cm H2O increment in respiratory effort, there was a 0.11 mm increase in hyoid displacement (p less than 0.001). Conclusions: Our pilot data suggest that hyoid displacement during DISE is strongly associated with respiratory effort, a key phenotypic trait in OSA. A larger study is required to confirm hyoid focused ultrasound as an accessible, non-invasive method of evaluating respiratory effort during DISE.

10:40 - 10:50   Q&A

10:50 - 11:25   PANEL: GENERAL AND SLEEP IN CONJUNCTION WITH

Navigating the Challenges of Perioperative Care for Patients with Obstructive Sleep Apnea
Moderator:
    Stacey L. Ishman, MD MPH, Cincinnati, OH
Panelists:
    Dane Grenda, DO, Philadelphia PA
    M. Boyd Gillespie, MD MSc FACS, Memphis, TN
    Colin T. Huntley, MD FACS, Philadelphia, PA

11:25 - 11:30   Q&A

FRIDAY CONCURRENT SESSIONS 11:30 - 12:00
GENERAL PANEL
304/306

11:30 - 11:55   **PANEL: GENERAL**
Value Based Payments: Preparing for CMS Engagement as a Specialty
Willard C. Harrill, MD FACS, Hickory, NC
Mary Witkowski, MD MBA, Boston, MA

11:55 - 12:00   **Q&A**

12:00   **ADJOURN**

12:00   **LUNCH/VISIT EXHIBITORS/VISIT POSTERS**

Allergy/Rhinology

C1.   **Raise in Epistaxis during COVID-19 Pandemic**

Lucas Diniz Costa, MD Lt., Sao Paulo, Brazil; Ana Paula Brandao Silva, MD, Sao Paulo, Brazil; Mariane Stagi Almada, MD, Sao Paulo, Brazil; Guilherme Irie Nakazora, MD, Sao Paulo, Brazil; Bruna Moretto, MD, Sao Paulo, Brazil; Antonio Carlos Cedin, MD PhD, Sao Paulo, Brazil

Educational Objective: At the conclusion of this presentation, the participants should be able to understand that COVID-19 can raise the numbers of epistaxis in a tertiary hospital.

Objectives: This study aims to check if the frequency of nasal bleeding and/or epistaxis in patients of a tertiary hospital are affected by the pandemic of COVID-19. Study Design: Retrospective study. Methods: This is a retrospective review of the clinical treated epistaxis cases at the department of otorhinolaryngology of a tertiary hospital comparing two periods: one from March 2020 to July 2021, comprising the high moment of pandemic setting, and other from August 2021 to May 2022. All medical consultations were performed on patients with an age of 18 years or more. The patient's data such as date of admission to hospital, date of birth, age and date of the epistaxis were registered in a record book as the epistaxis events occurred. Recurrences of epistaxis and post-surgery nasal bleeding were excluded from this study. We performed an analysis in our electronic database, to check information about PCR-COVID status and about the anticoagulation treatment in use. The collected data were tabulated and accounted for considering the total and average cases/month in each of the two periods above mentioned. Then we compared the average cases/month of epistaxis between these periods using t-test to assess for statistical significant difference. Also, we accessed the use of anticoagulants, detailing the type and the dose of each. All data sorting, calculations and charts were done in Microsoft Excel. Results: In the first period (March 2020 to July 2021) there were 180 cases of nasal bleeding and/or epistaxis in the analyzed period, resulting in an average of 12 cases/month, demonstrating a statistical significant increase ($p<0.01$) in the frequency of cases at the institution, when compared to a study involving 343 cases from the same institution over a period of 42 months (October 2015 to March 2019) in which the average was 8.1 cases/month 1. Of the 180 cases, 61 (33.88%) were patients with COVID-19 (CRP positive at the time of admission). Of these 61 cases, 55 (90.17%) were using some type of anticoagulant at the time of bleeding: 41% were on subcutaneous heparin (21% 5000 UI 3 times/day, 20% 5000 UI 2 times/day); 20% were on subcutaneous enoxaparin (3,33% 40 mg once a day, 1,66% 60 mg once a day, 1,66% 80 mg once a day, 1,66% 100 mg once a day, 8,33% 60 mg 2x/day, 3,33% 80 mg 2x/day); 16,66% were receiving intravenous heparin on continuous infusion bomb; 6,66% were on extracorporeal membrane oxygenation (ECMO) associated with intravenous heparin on continuous infusion bomb; 4,99% were on oral rivaroxaban; and 1,66% are on oral apixaban. On the second period (August 2021 to May 2022) there were 102 cases and the rate of cases/month

decreased to 10.2 case/month (p<0.01). Also the percentage of COVID-19 related epistaxis episodes decreased: only 10,79% of the nasal bleeding episodes was on COVID-19 positive patients. Conclusions: It is evident that the pandemic contributed to the increase in the number of hospital admissions and the present study demonstrates the impact on the raise in the number of epistaxis in hospitalized patients. Prospective studies to develop a safe anticoagulation protocol are needed in order to reduce the number of bleedings in patients with COVID-19.

C2. **Environmental Tobacco Smoking Impact on Allergic Rhinitis in Children: A Systematic Review**

Vickie D. Johnson II, MPH, Chicago, IL; Snehitha Talugula, BS, Chicago, IL; Kamal Eldeirawi, PhD RN, Chicago, IL; Sharmilee Nyenhuis, MD, Chicago, IL; Victoria Lee, MD, Chicago, IL

Educational Objective: At the conclusion of this presentation, the participants should be able to list the symptoms of allergic rhinitis, state the impact of environmental tobacco smoking on children, and name diagnostic measures for testing environmental tobacco smoke exposure.

Objectives: To systematically review existing literature on the association between allergic rhinitis (AR) and environmental tobacco smoking (ETS; includes secondhand and passive smoking) in children. Study Design: Systematic review. Methods: A systematic search of the PubMed database was performed to identify children with AR exposed to ETS as of July 27, 2022. Data were extracted by two reviewers on study type, how ETS was defined, location, patient demographics, population, and results. Final results were reviewed and discrepancies addressed by the senior author. Results: The initial search yielded 208 results, and 23 articles (18 cross sectional, 4 cohort, and 1 case control) reporting on 145,927 patients ranging from 0 to 19 years of age met inclusion criteria. Fourteen articles defined AR as self-determined by a questionnaire; nine articles did not provide a working definition. ETS was variably defined in 13 articles (cotinine levels, questionnaires). Twenty-one articles were international studies, and 2 articles were U.S. studies. Ethnicity/race was described in 8 international articles and 2 U.S. articles. Twelve articles found a positive association between ETS and AR, characterized by increased nasal obstruction, comorbid allergic diseases, and higher numbers of eosinophils in the nasal mucosa, whereas 9 articles did not find an association. Conclusions: Most studies found an association between AR and higher levels of ETS, but notably the terms were not uniformly defined. More high quality studies with consistent methods for diagnosing AR and measuring ETS exposure should be performed to better evaluate the relationship of AR and smoking environments in children.

C3. **Systemic Corticosteroid Treatment of Post-Viral Olfactory Dysfunction in the Era of COVID-19: A Systematic Review**

Kalena H. Liu, BS, New York, NY; Abhishek Doshi, BS, Syracuse, NY; Jacob E. Hoerter, MD, Oakland, CA; Jonathan Liang, MD MPH FACSS, Oakland, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the benefits and drawbacks of systemic corticosteroid use in post-viral olfactory dysfunction in both COVID and non-COVID patients.

Objectives: To assess the efficacy and safety of systemic corticosteroids in the treatment of post-viral olfactory dysfunction (PVOD). Study Design: Systematic review. Methods: A systematic review of Medline, Embase, and Cochrane databases queried from January 1995 to June 2022 was completed according to PRISMA guidelines. A summary of outcomes and level of evidence was used to generate a recommendation. Results: Of the initial 593 abstracts screened, 16 studies (2 with level 1 evidence, 4 with level 2 evidence, 2 with level 3 evidence, and 8 with level 4 evidence) with 1730 PVOD patients were included, 1238 of which were COVID patients. 7 studies evaluated oral corticosteroid treatment alone (prednisone, prednisolone, methylprednisolone) and 9 studies evaluated oral corticosteroid treatment in conjunction with other treatments (topical/intranasal steroids, olfactory training, G. biloba, or nasal saline irrigation). Olfactory testing and subjective symptom scores were used to assess PVOD improvement. 6/8 studies addressing COVID related PVOD demonstrated significant recovery with oral corticosteroid use and recommended administration in PVOD treatment. Oral corticosteroids were also largely successful in improving PVOD alone and in conjunction with other therapies, however two studies indicated there was no difference in PVOD recovery between systemic corticosteroids and other treatment types. Additionally, no significant long term side effects from systemic corticosteroid use were reported in any studies. Conclusions: Systemic steroids can be an option for PVOD treatment in non-contraindicated patients and early administration was shown to be more effective. Although these results are promising, more research is needed to establish clear guidelines for clinical management for PVOD.

C4. **A Sociodemographic Perspective on Endoscopic Skull Base Surgery and Quality of Life Outcomes**

Jonathan C. Pang, BA, Irvine, CA; Theodore V. Nguyen, BS, Irvine, CA; Katelyn K. Dilley, BS, Irvine, CA; Arash Abiri, BS, Irvine, CA; Zena D. Del Mundo, BS, Irvine, CA; Edward C. Kuan, MD MBA, Irvine, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize socioeconomic variables that have yet to contribute to endoscopic skull base surgery and quality of life outcomes.

Objectives: Socioeconomic factors may impact endoscopic skull base surgery (ESBS) outcomes and postoperative quality of life (QoL) to create potential health disparities. We evaluate complication incidence and QoL following ESBS and identify

contributing sociodemographic influences. Study Design: Retrospective cohort. Methods: Chart review was conducted at a single center, tertiary academic skull base surgery program including consecutive adult patients who underwent endoscopic endonasal surgery for any skull base pathology between July 2018 and June 2022. Postoperative cerebrospinal fluid leak, postoperative sinonasal infection, and 22 item Sinonasal Outcomes Test (SNOT-22) score comprised the primary outcomes. Independent study variables included patient sex, race/ethnicity, insurance status, and socioeconomic disadvantage measured by Area Deprivation Index (ADI). Results: 218 patients (242 operations) were included, of which 48.6% (106/218) were assigned female at birth, 62.4% (136/218) identified of nonwhite race, 39.9% (87/218) identified as Hispanic/Latinx, and 56.4% (123/218) held governmental insurance. Overall mean ADI were 5.35 +/- 2.32 by state decile and 18.92 +/- 17.21 by national percentile. Preoperative, postoperative short term (<1 month), midterm (1-3 months), and long term (6+ months) mean SNOT-22 scores overall were 22.67 +/- 20.38, 31.58 +/- 19.16, 23.21 +/- 19.75, and 15.63 +/- 13.64, respectively. None of the examined demographic variables or socioeconomic indices were found to be significantly associated with incidences of postoperative cerebrospinal fluid leak or postoperative sinonasal infection. No demographic or socioeconomic measure was associated with quality of life as assessed by SNOT-22 score during any perioperative period. Conclusions: Understanding of social determinants of health is critical to the efficacious and equitable provision of healthcare. However, socioeconomic factors have yet to be rigorously associated with common measures of ESBS outcomes.

C5. **Residential Proximity to Commercial Pesticide Application and Risks for Chronic Rhinosinusitis with or without Nasal Polyps**

Hong-Ho Yang, BS, Los Angeles, CA; Kimberly C. Paul, PhD, 90095, CA; Jeffrey D. Suh, MD, Los Angeles, 90095; Marilene B. Wang, MD, Los Angeles, CA; Jivianne T. Lee, MD, Los Angeles, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to appreciate the potential impact of commercial pesticide application on the prevalence of chronic rhinosinusitis.

Objectives: This study investigates the relationship between residential proximity to commercial pesticide application and the prevalence of chronic rhinosinusitis with or without nasal polyps (CRSw/woNP). Study Design: Case control analysis. Methods: Patients who underwent sinonasal procedures between March 2018 and August 2021 at a tertiary institution were included in this study. The outcome variable was the clinical diagnosis of CRS (CRSwNP, CRSwoNP, or non-CRS control). The address of home residence was utilized to determine pesticide exposure status based on data from our state's pesticide use report system database. We assessed a dichotomous independent variable of whether any pesticide application within 2000 meters of residence was reported in 2017 (exposed or non-exposed). A multivariable multinomial regression analysis was performed to compare odds

of CRS between exposed and non-exposed patients. Results: Among a total of 92 subjects (31 CRSwNP, 31 CRSwoNP, and 30 control), the mean age was 50 years and 49% were female. 58% of CRSwNP patients were exposed, 61% of CRSwoNP patients were exposed, and 43% of control patients were exposed. Controlling for patient age, sex, smoking history, year of surgery, and county of residence, exposed patients were at significantly higher risk for CRSwNP (aOR 3.76, 95% CI 1.45-9.75, P=0.03) and CRSwoNP (aOR 2.67, 95% CI 1.10-6.50, P=0.006) compared to non-exposed patients. Conclusions: Our analysis revealed that living near commercial pesticide application was independently associated with an approximately three-fold increase in odds of CRS pathologies. Additional research is warranted to further delineate the underlying mechanism of this relationship.

Facial Plastic and Reconstructive
C6. **Carcinoma ex Pleomorphic Adenoma of the Lacrimal Gland: A Case Report and Review of the Literature**
Abdurrahman Al-Awady, BS, New York, NY; Torin Thielhelm, BS, New York, NY; Alfred M. Iloreta, MD, New York, NY; Mingyang Gray, MD MPH, New York, NY

Educational Objective: At the conclusion of this presentation, participants should understand the clinical presentation, diagnosis, and management of carcinoma ex pleomorphic adenoma of the lacrimal gland. Participants should recognize that carcinoma ex pleomorphic adenoma of the lacrimal gland is a rare but serious diagnosis.

Objectives: Pleomorphic adenoma often presents within salivary glands but can also arise from the lacrimal gland. Carcinoma ex pleomorphic adenoma is a rare tumor that can arise from pleomorphic adenoma. It is very rarely identified in the lacrimal gland. We sought to 1) present a rare case of a patient with carcinoma ex pleomorphic adenoma of the lacrimal gland; and (2) review the literature regarding carcinoma ex pleomorphic adenoma of the lacrimal gland. Study Design: Case report. Methods: Examination of medical records was performed in October 2022. A literature review was performed using PubMed and EMBASE from 1940-2022. Results: A 56 year old man with unknown history of benign right eye mass removal 30 years ago presented with painless right eye swelling, blurred vision, and new eye mass. The patient was initially diagnosed with lacrimal gland adenocarcinoma, but subsequent biopsy revealed carcinoma ex pleomorphic adenoma (Ca-ex-PA) of the lacrimal gland. Imaging showed extra and intraconal involvement with meningeal enhancement. The patient underwent orbital exenteration with anterolateral thigh free flap reconstruction. Final pathology showed a major component comprised of high grade salivary duct carcinoma and a minor component of epithelial myoepithelial carcinoma. Immunohistochemical studies showed the salivary duct component to be strongly positive for the androgen receptor and Her2. The patient is currently undergoing adjuvant therapy. Literature review yielded no other cases of lacrimal Ca-ex-PA with this mixed cell type and presentation. Conclusions: Carcinoma ex pleomorphic adenoma is very rarely identified in the lacrimal gland. This case illus-

trates the importance of accurate diagnosis and treatment of carcinoma ex pleomorphic adenoma of the lacrimal gland.

C7. Anomalous Relationship of Facial Nerve and Terminal Branch of the External Carotid Artery in Parotidectomy
Moataz M.S. Aldahlawi, MBBS, Baltimore, MD; Mohamed Darwish, MD, Baltimore, MD; Abraham Gol, MD, Baltimore, MD

Educational Objective: 1) Explain the unusual course and relationship of the facial nerve's main trunk and the external carotid artery; 2) highlighting the role of embryologic development of the facial nerve and the carotid arteries in the resulting anomaly; 3) review of literature pertinent to reported anomalies in the facial nerve; and 4) emphasizing the importance of nerve monitoring during parotid surgery in avoiding inadvertent injury to branches of the facial nerve.

Objectives: Parotidectomies revolve around meticulous and careful identification and dissection of facial nerve's main trunk and its terminal branches. Nerve monitoring renders these procedures more safe with less complications. Nevertheless, anatomical variations and aberrant course of structures might be challenging. The facial nerve course is one of the most complicated anatomical structures in the nervous system. The facial nerve develops into the 2nd branchial arch and the external carotid artery, which sprouts from the pharyngeal arch arteries system. In this case report we present an anomalous facial nerve trunk with an unusual relationship with the terminal branch of the carotid artery. In addition we highlight the anatomical, embryological and pathophysiological implications for such anomaly faced in parotid surgeries. Study Design: Case report. Methods: Chart review. Results: No statistics. Conclusions: In this case we emphasize the possibility of encountering an anomalous facial nerve main trunk during parotid surgery. In addition this anomaly might show the possible embryologic link between the development of the facial nerve and the external carotid artery. This link might be explained by the course and phases of development of both structures and the molecular signaling pathways involved in their regulation. It is needless to reiterate in literature that use of nerve monitoring is of utmost importance in uncovering unusual nerve branching patterns in procedures around the facial nerve and its branches.

C8. Perception of Cauliflower Ear amongst Combat Sport Athletes
Zev Hirt, BA, Bronx, NY; Lindsey Stephen, BA, New York, NY; Jianyou Liu, MS, New York, NY; Juan Lin, PhD, Bronx, NY; Andrew Lee, MD, Bronx, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to see how individuals in the combat sports community view cauliflower ear more positively than the general population.

Objectives: Cauliflower ear, or "hematoma auris", is a permanent condition that is typically viewed as a deformity. Despite this, it has anecdotally been observed that combat sport athletes view cauliflower ear as a respected aesthetic trait. The

objective of the study was to characterize and quantify the differences in perception of cauliflower ear between combat sport athletes and the general public. Study Design: Cross-sectional survey. Methods: Survey participants were shown frontal and profile views of four subjects with cauliflower ear and five control subjects. Respondents evaluated their initial impressions of the images along a sliding scale from 0-100 regarding the personal attributes of successfulness, attraction, approachability, and emotion. Univariate analysis was performed to compare demographic characteristics between the cohorts of combat sport and non-combat sport respondents. Multivariate analysis was used to control for confounding factors via linear regression. Results: 669 combat sport athletes and 121 non-combat sport-athletes participated in the survey. Respondents in the combat sports community rated subjects with cauliflower ear significantly more favorably than those in the general population in all personal attributes: successfulness (+4.03 (95% CI: 1.8-6.2; p-value equals 0.0003)) attractiveness (+4.11 (CI: 1.8-6.4; p-value equals 0.0005)) approachability (+11.57 (CI: 8.4-14.7; p-value less than 0.0001)), and emotion (+4.14 (CI: 1.9-6.3; p-value equals 0.0002)). Conclusions: Individuals in the combat sports community view cauliflower ear more positively than the general population with respect to success, attractiveness, approachability, and emotion. Traits that are viewed as deformities in the general public can be viewed favorably in specific communities.

C9. **Histologic Analysis of Upper Lateral Cartilage: A Potential Explanation for the Pathophysiology of Nasal Valve Compromise**

Sulgi Kim, BA, Chapel Hill, NC; Deanna C. Menapace, MD, Omaha, NE; Mark M. Mims, MD, Oklahoma City, OK; William W. Shockley, MD, Chapel Hill, NC; Madison J. Clark, MD, Chapel Hill, NC

Educational Objective: At the conclusion of this presentation, the participants should be able to know that decreased glycosaminoglycans at the upper lateral cartilage could be potential pathophysiology of nasal valve compromise.

Objectives: Nasal valve compromise is a common problem for patients presenting to an otolaryngologist. However, there is no consensus on the pathophysiology of the disease process. Anatomically upper lateral nasal cartilage (ULC) articulates with medial septal cartilage. When the ULC gets weak from aging or detaches from the septal cartilage from trauma, it is prone to collapse and results in nasal obstruction. The objective of this study was to examine the histologic composition of the ULC. Study Design: Prospective cross-sectional study of nasal cartilages from seventy-three live donors. Methods: Quadrangular cartilage (QC), and upper lateral cartilage (ULC) from patients undergoing either non-butterfly graft or butterfly graft rhinoplasty were collected. Safranin O histochemical staining was used to observe glycosaminoglycans (GAGs) content and cell count. ImageJ2 software (version 2.3.0, National Institute of Health, Bethesda, MD) was used to calculate cell count and percent stained for each cartilage type. Results: The ULC had lower mean GAG content ((mean, 95 CI), 68.18%, 61.12%-75.48%) compared to quadrangular cartilage (87.22%, 82.54%-91.89%) $p<0.001$. Additionally, ULC from butterfly graft

rhinoplasty patients had lower GAG content (59.07%, 48.97%-69.16%) compared to patients undergoing non-butterfly graft rhinoplasty (79.90%, 70.54%-89.26%), p= 0.0038. Conclusions: Glycosaminoglycan plays a critical role in maintaining cartilage stiffness, resilience, and durability. Our data showed decreased GAG content in ULC specifically from the dorsal articulation with the nasal septum compared to quad-rangular cartilage. Within the ULC, patients undergoing butterfly graft surgery had the lowest GAG content. Decreased GAG content may suggest that ULC is vulnera-ble to collapse as its resilience and durability are decreased. Our histologic find-ings may indicate that decreased GAG content in ULC may potentiate lateral wall collapse leading to nasal valve compromise.

C10.   Factors Associated with Emergency Department Admissions for Adult Facial Trauma: A Twenty Year National Retrospective (2002-2021)
Joshua Lin, BA, Los Angeles, CA; Matthew Ern Lin, BS, Los Angeles, CA; Neil N. Luu, MD, Los Angeles, CA; Alexander Markarian, MD, Los Angeles, CA; Roxana Moayer, MD, Los Angeles, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to learn about what factors are associated with admission of adult facial trauma presenting to the emergency department.

Objectives: Predict adult facial trauma admission from the emergency depart-ment. Study Design: Retrospective analysis of data from the National Electronic Injury Surveillance System (NEISS) database. Methods: Clinical, demographic, and injury related data were abstracted from all adults presenting with facial injury in the 2002-2021 NEISS database. Multivariate logistic regression was used to exam-ine factors associated with hospital admission from the emergency department. Significance was set at $p<0.05$. Results: A total of 898,647 adult patients were included. Increased age (OR=1.03, 95% CI=[1.03-1.03] , $p<0.0001$), weight (OR=1.00, 95% CI=[1.00-1.00], $p<0.0001$), male sex (OR=1.43, 95% CI=[1.39-1.48], $p<0.0001$), and involvement of alcohol (OR=1.61, 95% CI=[1.51-1.71], $p<0.0001$) and drugs (OR=2.46, 95% CI=[2.31-2.63], $p<0.0001$) significantly increased likelihood of ad-mission. Scalds/burns (OR=2.71, 95% CI=[1.87-3.83], $p<0.0001$) and nerve damage (OR=3.11, 95% CI=[2.38-4.03], $p<0.0001$) were associated with significantly in-creased admission likelihood, whereas concussions were less likely to be admitted (OR=0.37, 95% CI=[0.33-0.41], $p<0.0001$). African American race was associated with significantly lower admission likelihood relative to non-African American patients regardless of injury etiology (OR=0.61, 95% CI=[0.52-0.71], $p<0.0001$). Whereas head injuries were associated with significantly higher admission like-lihood relative to non-head injuries when not involving contusions or abrasions, the opposite was true with injuries involving contusion or abrasion (OR=4.42, 95% CI=[3.91-5.02], $p<0.0001$). Fractures were associated with higher likelihood of ad-mission relative to nonfractures regardless of head involvement; this difference was magnified between head fractures and nonfracture head injuries (OR=3.04, 95% CI=[2.34-4.01], $p<0.0001$). Conclusions: Emergency departments' fast pace makes

accurate assessment difficult. Our model provides insight to facilitate disposition of adult facial trauma.

C11.   Association between Surgical Specialty and Postoperative Outcomes of Septoplasty

Dhiraj Raju Sibala, BS, Newark, NJ; Sree C. Chinta, BS, Newark, NJ; Isabel Herzog, BS, Newark, NJ; Navya Pendyala, BS, Newark, NJ; Michael S. Hegazin, DO, Newark, NJ; Jean A. Eloy, MD FACS, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the association between surgical specialty and complications in septoplasty.

Objectives: Septoplasty is a functional procedure that is typically performed by otolaryngologists (ENT) but can be performed by other surgical specialties. This study investigates the association between surgical specialty and complications in septoplasty. Study Design: Retrospective database review. Methods: The National Surgical Quality Improvement Program (NSQIP) database was queried for patients who underwent septoplasty between 2005 and 2018. Univariate and multivariable analyses were conducted to determine associations between surgical specialty and postoperative complications. Results: 3,426 patients undergoing septoplasty were queried. Of the cohort, 3,160 (92.2%) were operated on by ENT and 266 (7.8%) were operated on by surgeons of other specialties. ENT patients were more likely to be younger, male, of lower ASA classification, and obese (51.0% vs 36.7%, p less than 0.001). Non-ENT patients were more likely to have hypertension (31.6% vs 24.0%, p=0.006) and use steroids (5.3% vs 2.2%, p=0.002) among other comorbidities. Univariate analysis also revealed a significantly lower surgical (0.7% vs 4.5%, p less than 0.001) and overall complication rate (1.6% vs 5.6%, p less than 0.001) as well as a lower readmission rate (18.9% vs 50.0%, p=0.003) among ENT patients. Multivariate analysis revealed no significant difference in the development of postoperative complications between non-ENT and ENT patients. Conclusions: Surgical specialty has been shown to impact outcomes of other head and neck procedures. However, this study does not suggest an association between surgical specialty and postoperative complications in septoplasty.

C12.   Incidence of Sinusitis after Orthognathic Surgery: A Systematic Review

Snehitha Talugula, BS, Chicago, IL; Vickie Johnson II, MPH, Chicago, IL; Linping Zhao, PhD, Chicago, IL; Pravin Patel, MD, Chicago, IL; Victoria S. Lee, MD, Chicago, IL

Educational Objective: At the conclusion of this presentation, the participants should be able to determine the incidence of sinusitis as a postoperative complication of orthognathic surgery.

Objectives: Maxillary osteotomies, a component of orthognathic surgery involving advancement of the inferior component of the sinus, disrupt the normal anatomy

and function of the sinus. Immediately after surgery, nasal drainage is impeded because of the intranasal swelling. Acute and chronic maxillary sinusitis seems possible; however, its incidence as an expected complication is not well documented. The objective of this study was to determine the incidence of sinusitis as a postoperative complication of orthognathic surgery. Study Design: Systematic review. Methods: A systematic review search of the PubMed database was performed to determine the incidence of sinusitis after maxillary orthognathic surgery. Studies were reviewed by two authors and incidence data were extracted. Results: 206 articles were identified with 24 meeting the criteria for analysis. The incidence of sinusitis was based in 4,213 participants who had undergone orthognathic surgery. 23 studies reported a total number of sinusitis cases, and the results demonstrated an overall incidence rate of 2.49% (104 cases). One study did not report a total number of cases but reported chronic sinusitis survey duration based (CSS-D) and Lund-Mackay (LMS) scores. CSS-D scores worsened from 7.6 to 14.8 and LMS scores worsened from 1.58 to 2.90 postoperatively. Conclusions: Despite the variability of the maxillary surgery, the surgical technique and the postoperative management, the incidence is low but does occur. Prospective study with validated questionnaire within the context of a specific protocol may further elucidate the causality of sinusitis. Further, patients should be encouraged to consult with an otolaryngologist post-surgery to minimize risk.

C13. **Evaluating the Quality and Reliability of Male Rhinoplasty Videos on YouTube and TikTok**

Benjamin Tam, BS, Los Angeles, CA; Matthew Lin, BS, Los Angeles, CA (Presenter); Ruben Ulloa, BA, Los Angeles, CA; Rishabh Shah, BS MS, Los Angeles, CA; Neil Luu, MD, Los Angeles, CA; Roxana Moayer, MD, Los Angeles, CA

Educational Objective: At the conclusion of this presentation, the audience will have a better understanding of the quality and reliability of male rhinoplasty videos on YouTube and TikTok.

Objectives: Evaluate the quality of male rhinoplasty videos on YouTube and TikTok. Study Design: Cross-sectional analysis of YouTube and TikTok videos. Methods: We used the terms "male rhinoplasty", "male nose job", "male nasal reconstruction" and "male septorhinoplasty" to search for videos on YouTube and TikTok. Videos were anonymously queried on incognito browsers to avoid bias from personal data and were selected by default order of presentation. Data such as type of account, type of video and quality/reliability were collected. The DISCERN scale was used to determine the quality, reliability and overall DISCERN score for each video. Quality scores were compared among type of account, type of video, and social media platform. Descriptive statistics were used to characterize our data. Fischer's exact and Mann-Whitney U tests were used to compare videos. Significance was set at $p < 0.05$. Results: A total of 104 videos were included in this study with 57 on YouTube and 47 on TikTok. Most videos were produced by a healthcare professional/organization (82.7%) as opposed to non-healthcare accounts. Significant differences

were found between YouTube and TikTok videos in DISCERN reliability (p=0.00001), DISCERN quality (p=0.007) and overall DISCERN score (p=0.001). Videos more likely to be made by non-healthcare accounts included patient experience (p=0.0003) and entertainment (p=0.016). Videos produced by healthcare accounts were more likely to be self-promoting (p=0.00005). Conclusions: Relative to TikTok, YouTube has more reliable, accurate and overall higher quality videos regarding male rhinoplasty.

C14. Stabbed at the Skull Base: A Case Report of Penetrating Injury to Multiple Cranial Nerves and Acute Surgical Management
Torin P. Thielhelm, MD, New York, NY; Lisa Tian, MD, New York, NY; David W. Chou, MD, New York, NY; Joshua D. Rosenberg, MD, New York, NY; Mingyang L. Gray, MD MPH, New York, NY

Educational Objective: At the conclusion of this presentation, participants should understand the clinical presentation, diagnosis, and management of injuries to the facial, glossopharyngeal, vagus, and hypoglossal nerves after penetrating trauma.

Objectives: 1) Present a case of penetrating ear injury resulting in deficits in facial, glossopharyngeal, vagus, and hypoglossal nerves; and 2) review the literature regarding penetrating neck injury. Study Design: Case report. Methods: Examination of medical records was performed in October 2022. Literature review was performed using PubMed and EMBASE from 1922-2022. Results: A 16 year old healthy male sustained penetrating stab injury through the left ear with resulting facial droop, dysphagia, and dysphonia. Physical exam revealed complete left sided facial paralysis, asymmetric palatal rise with right uvular deviation, and left tongue deviation. Flexible laryngoscopy revealed left vocal fold immobility. Computed tomography angiography of the head and neck showed no vascular injuries. Modified barium swallow showed significantly reduced upper esophageal sphincter opening and laryngeal excursion with aspiration of thin liquids indicative of glossopharyngeal sensory and motor deficits. Surgical exploration revealed complete transection of the left facial nerve near the skull base, as well as injury to the left vagus and hypoglossal nerves with maintained continuity. Patient underwent mastoidectomy with facial nerve decompression and repair with cable graft and nerve conduit, wrapping of injured hypoglossal nerve with allograft sheath, primary repair of presumed glossopharyngeal branch, and left vocal fold injection. Literature review yielded no previous cases of comorbid left facial, glossopharyngeal, vagus, and hypoglossal nerve injuries after penetrating trauma. Conclusions: Penetrating trauma to the head and neck can result in catastrophic injury to critical nerves and vessels. This case represents a rare instance in which the facial, glossopharyngeal, vagus, and hypoglossal nerves were injured while sparing vessels in close proximity.

C15. **Predictors and Themes of Perioperative Patient Initiated Communications in Rhinoplasty: Opportunities to Improve**
Priyanka Tripuraneni, MD, Washington, DC; Amir Hakimi, MD, Washington, DC; Michael J. Reilly, MD, Washington, DC

Educational Objective: At the conclusion of this presentation, participants should be able to identify the incidence of, reasons for, and patient and surgical characteristics associated with patient initiated communications (PIC) in the perioperative period of rhinoplasty.

Objectives: Effective perioperative communication is critical for patient education and expectation management. We seek to identify the prevalence of and reasons for patient initiated communications (PIC) in the perioperative period for rhinoplasty. We also aim to characterize patient and surgical qualities associated with higher incidences of PIC. Study Design: Retrospective chart review. Methods: Records were obtained for patients who underwent rhinoplasty between 8/6/2017 - 8/6/2022. Demographics, surgical characteristics, frequency, and reasons for perioperative PIC were recorded. Nasal Obstruction Symptom Evaluation (NOSE) scores were recorded and classified using the following criteria: mild (5-25), moderate (30-50), severe (55-75), and extreme (80-100). Results: A total of 121 patients were included in the analysis. Perioperative PIC was identified among 65% of patients. Patients with allergic rhinitis had a significantly higher average number of PIC compared to patients without allergic rhinitis (1.1 vs 0.66, p = 0.03). Patients with severe or extreme preoperative NOSE scores were significantly more likely to establish PIC compared to patients with mild or moderate NOSE scores (OR, 2.65; 95% CI [1.09,6.51]). History of anxiety or depression, smoking, prior rhinoplasty, and cosmetic surgery were not significantly associated with increased PIC. Common reasons for preoperative PIC included administrative inquiries (30%) and medication concerns (24%). Common reasons for postoperative PIC included wound care (15%) and medication clarification (15%). Conclusions: Perioperative PIC is common among rhinoplasty patients. Identifying motives for these communications and patient populations who have a higher incidence of PIC may guide quality improvement initiatives to preemptively address these concerns.

C16. **The Presentation, Management, and Outcomes of Pathologic Scarring within an Urban Tertiary Pediatric Otolaryngology Practice**
Alessandra Zaccardelli, MS, Boston, MA; Jennifer L. Harb, MD, Boston, MA; Evangelos Papathanasiou, DDS MS DMD PhD, Boston, MA; Andrew R. Scott, MD, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to identify the role of race and ethnicity in hypertrophic scar location, and how this impacts treatment modality and overall treatment number in an urban pediatric population.

Objectives: This study aims to review the spectrum of scarring that may present

to an urban, pediatric otolaryngology practice and determine if associations exist between race, scar location, treatment modality, and outcomes following interventions for scarring in children. Study Design: Retrospective cohort study among pediatric patients presenting with keloids at our medical center to investigate associations between race, hypertrophic scar location, and management. Methods: Records were reviewed and variables such as age at presentation, duration of scarring, sex assigned at birth, race/ethnicity, economic quintile, cause of scar, anatomical location, treatment type, number of interventions, and ultimate outcome were analyzed. Subsequent multivariate analyses assessed associations between race and intervention type, and scar location and intervention. Results: 115 patients with 138 unique scars were analyzed. Mean age at presentation was 9.9 years (range 2.8 - 17 years). Among individuals who were Black, 58.8% presented with ear scars, while 45.4% of individuals of Asian descent presented with neck scars. Ear scars were more likely to be treated with excision compared to other modalities (adjusted OR: 5.9 [1.433-23.986] p less than .014), and to require more than one intervention (adjusted OR: 5.9 [1.5-22.7] p less than .010). Conclusions: Among children presenting with keloids, children who were Black or Asian were more likely to present with ear and neck scars, respectively. Ear keloids were frequently treated with excision and often required multiple additional treatments over time.

General

C17. **Social Determinants of Heath: Representation in the Otolaryngology Literature**

Jazzmyne Azure Adams, MPH, Milwaukee, WI; Luis M. Rubio, MD, Springfield, IL; Somchy Phomsopha, BS, Milwaukee, WI; David R. Friedland, MD PhD, Milwaukee, WI

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the rates of manuscript publication in otolaryngology literature.

Objectives: Social determinants of health are increasingly recognized as contributing to disease prevalence and outcomes in otolaryngologic disorders. We sought to identify whether submissions focusing on social determinants of health have similar acceptance rates as other studies in otolaryngology. Study Design: Retrospective review. Methods: We reviewed all abstracts (n=798) accepted for podium or poster presentation at the Triological Society sectional meetings from 2019-2021. This database was utilized due to the availability of abstracts online, and the close association of the meeting with a single journal platform. Abstracts were categorized into type of investigation, year of submission, region of submitting institution, and whether published as of June 28, 2022. Rates of publication were analyzed by topic and type of study. Results: Abstracts focusing on social determinants of health comprised 6.6% of all abstracts. The publication rate for social determinants of health abstracts was 50.9% compared to 41.4% of all abstracts. We evaluated the impact of methodology. Social determinant research utilized retrospective cohorts in 58.5% of studies while 74.6% of studies on clinical outcomes used similar methodology. The

successful manuscript publication rate for clinical outcome studies was 41.6% and was 38.7% for all retrospective cohort studies. Conclusions: There was no significant difference in publication rate between studies investigating social determinants of health and other types of investigations. Most studies on social determinants of health utilized retrospective cohorts, a lower level of evidence, yet had a higher publication rate than clinical outcome studies using the same methodology.

C18. **Bilateral Hypoglossal Nerve Paralysis following Necrotizing Fasciitis: A Novel Case Report and Literature Review**
Adaobi Eleanor Ahanotu, BS, Baltimore, MD; Priya Patel, MD, Baltimore, MD; Sunny Haft, MD, Baltimore, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the causes of bilateral hypoglossal nerve paralysis, its consequences, and appropriate management for this rare injury.

Objectives: To report a novel case of bilateral hypoglossal nerve paralysis following necrotizing fasciitis, describe the potential for acute airway decompensation with this injury, and emphasize the importance of securing the airway early when this condition is encountered. Study Design: Presentation of a case with review of literature. Methods: Medical databases including PubMed/Medline were reviewed to identify similar cases of bilateral hypoglossal nerve paralysis reported in literature. Results: We report a case of a 52 year old male with cervical necrotizing fasciitis of the left and right submandibular area. He underwent multiple debridements until resolution of the infection. Acute and sudden respiratory arrest occurred 12 hours after extubation, secondary to poor secretion tolerance from full tongue paralysis, and subsequent airway obstruction. Patient required CPR and a bedside cricothyrotomy. There are a handful of case reports describing bilateral hypoglossal nerve paralysis, typically in the setting of post-intubation injury. Two of these reports describe severe respiratory distress that occurred hours after a period of initial stability, with one requiring emergent tracheostomy. Conclusions: Bilateral hypoglossal nerve paralysis is a rare condition that requires immediate attention to the airway. We propose management with a tracheostomy as the safest approach. According to the literature, palsies typically last for week to months, allowing for eventual decannulation.

C19. **Predictors of Non-Rhinogenic Facial Pain or Pressure in Otolaryngology Clinic**
Samuel J. Altonji, MD, Durham, NC; Amanda C. Del Risco, BA, Durham, NC (Presenter); Kayla Kilpatrick, PhD, Durham, NC; Maragatha Kuchibhatla, PhD, Durham, NC; Ralph Abi Hachem, MD, Durham, NC; David W. Jang, MD, Durham, NC

Educational Objective: At the conclusion of this presentation, the participants should be able to describe clinical features in patients presenting with a non-rhinogenic etiology of their facial pain or pressure.

Objectives: Identify demographic and clinical characteristics that may help to differentiate non-rhinogenic facial pain or pressure (NRFP) from sinusitis. Study Design: Single institution retrospective study. Methods: All patients presenting to a tertiary rhinology clinic with a complaint of facial pain or pressure over a three year period were included. Patients were categorized into either NRFP or sinusitis groups based on CT imaging and nasal endoscopy. Data pertaining to demographics, history, and SNOT-22 questionnaire domains were compared via univariate analysis as well as logistic regression with backwards variable selection. Results: 296 patients met inclusion criteria, of which 128 had NRFP and 168 had sinusitis. Being a woman of childbearing age was significantly associated with NRFP. There were no significant differences in pain/pressure in terms of unilateral vs bilateral or episodic vs chronic. Backwards variable selection resulted in a model with four variables predicting a diagnosis of NRFP - female sex, no history of prior sinonasal surgery, low nasal domain score, and high ear/facial domain score. Conclusions: Accurately identifying patients with NRFP at initial presentation based on history would help to direct patients to the appropriate care pathway and prevent ineffective treatments such as antibiotics and sinus procedures. Our findings suggest that the suspicion for NRFP should be higher in women of childbearing age as well as patients who score higher on the ear/facial domain and lower on the nasal domain.

C20.   Hot Tonsillectomy: How Do Risks Compare to Routine Tonsillectomy?
Beatrice Bacon, BS, Buffalo, NY; Jackline Fahmy, BS, Buffalo, NY; Soumya Gupta, MD, New York, NY; Afreen Siddiqui, BS MS, Buffalo, NY; Matthew Kabalan, MD, Buffalo, NY; Michele Carr, DDS MD PhD, Buffalo, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to compare the risks associated with hot tonsillectomy to the risks of tonsillectomy as treatment for recurrent tonsillitis.

Objectives: Our goal was to compare risks of hot tonsillectomy to tonsillectomy done for recurrent tonsillitis in adults. Study Design: Retrospective cohort design with data from the American College of Surgeons NSQIP database. Methods: The database was used to locate records for adults who had undergone tonsillectomy with postoperative diagnoses of either peritonsillar abscess (PTA group) or recurrent/chronic tonsillitis (RT group). Variables included age, gender, race, preoperative comorbidities, postoperative complications, return to operating room, and readmission. Results: 6183 patients were in the RT group, 200 in the PTA group. More males were in the PTA group, 104 (52.0%), vs. 2031 (32.8%) in the RT group (p<.001). Mean age 31.8 years for PTA, 28.2 years for RT (p<.001). There were no racial differences. In the PTA group, 33 (13.8%) had sepsis or SIRS vs. 17 (0.2%) in the RT group (p<.001), (13%) took hypertension medications vs. 365 (5.9%) in the RT group (p<.001), and 58 (29%) were smokers vs. 821 (13.3%) in the RT group (p<.001). 12 (6.6%) in the PTA group returned to the OR compared to 207 (3.3%) in the RT group, with OR 1.8 for PTA compared to RT (95% CI 1.01-3.17). Binary logistic

regression showed predictors of return to OR were age, sex, race, and preoperative use of hypertension medications. There was no difference in readmissions between the groups. Conclusions: Adults undergoing tonsillectomy for PTA do not have a significant complication rate but do have more comorbidities than adults undergoing tonsillectomy for recurrent infection.

C21.   **A Comparison of Adverse Events among Otolaryngology Implants: A Review of the Manufacturer and User Facility Device Experience (MAUDE) Database**

Dylan Bertoni, MD, Philadelphia, PA; Victor Jegede, BS, Philadelphia, PA (Presenter); Maurits Boon, MD, Philadelphia, PA; Colin Huntley, MD, Philadelphia, PA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand that hypoglossal nerve stimulators for the treatment of obstructive sleep apnea have an adverse event rate that is comparable to other nerve stimulators used within the field of otolaryngology.

Objectives: Upper airway stimulation with the Inspire (Minneapolis, MN) device (UAS) is a Food and Drug Administration (FDA) approved treatment for obstructive sleep apnea (OSA) in select patients. This technology is still relatively new, with the Inspire device obtaining FDA approval in 2014. The purpose of this study is to demonstrate the relative safety of UAS by comparing adverse events with cochlear implants (CIs)--a nerve stimulator used by otolaryngologists since the 1970s. Study Design: Retrospective database review. Methods: The FDA MAUDE database was searched for 3 major brands of CIs (Cochlear Ltd., Advanced Bionics, Ltd., and MED-EL) and the Inspire brand of UAS. Reports of adverse events associated with these products from June 2021 to June 2022 were included for analysis. Event variables that were collected include event type, event date, device problem, and patient reported problem. The number of implanted UAS and CIs were estimated using published literature and media articles. Data was compiled and analyzed using descriptive statistics. Results: Approximately 5,000 Inspire devices were implanted, and 20,000 CIs were implanted in the United States over this period. A total of 280 adverse events were reported for UAS (0.056 events/implant) compared to a total of 810 adverse events for CIs (Cochlear Ltd 193, Advanced Bionics, Ltd 274, MED-EL 343; 0.041 events/implant). There were 0 deaths reported for any implant. There were 43 Inspire malfunctions and 237 injuries. There was a total of 521 malfunctions for Cis and 289 injuries. Conclusions: UAS has a comparable adverse event rate to other commonly implanted nerve stimulators in otolaryngology.

C22. **Assessing Social Vulnerabilities of Salivary Gland Cancer Care, Prognosis, and Treatment in the United States**
Govind S. Bindra, MS, Memphis, TN; David Jun Fei-Zhang, BA, Chicago, IL; Daniel Chelius, MD, Houston, TX; Jeff Rastatter, MD MS, Chicago, IL; Anthony Sheyn, MD, Memphis, TN

Educational Objective: At the conclusion of this presentation, the participants should be able to demonstrate the utility of the social vulnerability index for assessing varied social determinant impacts on prognostic and care level factors in interactional, sociodemographic contexts in the United States.

Objectives: To determine to what degree social determinants of health (SDH) are linked to diagnostic, staging, treatment, and outcome disparities among salivary gland cancer (SGC) patients across the United States. Study Design: We used the CDC Social Vulnerability Index (SVI) to determine the impact of varied SDH and their collective influence on diagnosis, staging, treatment, and outcome of adults with SGC across the United States. Methods: In this retrospective cohort study, we identified 24,775 SGC patients' SEER patient data from 1975-2017 and vulnerability scores from the SVI, and matched scores to patients based on county of residence at time of diagnosis. Results: Increasing total SVI score (i.e., increased social vulnerability) revealed substantial decreases in months surveyed (28.01%-39.89%) and months survival (32.97%-47.88%) for parotid, submandibular, and other salivary gland (p<0.001) primaries; and months surveyed (3.38%-33.77%) and months survival (19.53%-52.35%) for disease classes of acinar cell neoplasms, adenocarcinomas, complex mixed and stromal neoplasms, epithelial neoplasms, mucoepidermoid neoplasms, squamous cell neoplasms, and unspecified neoplasms (p<0.028 at most). Significant decreases in months surveyed and survival were also observed for these sites and disease classes with increasing socioeconomic status, minority language, household composition, and/or housing transportation subscores. Moreover, increasing total SVI score showed significantly increased odds of adenocarcinoma patients receiving an advanced staging diagnosis (OR=1.12, 95% CI 1.07-1.17) and chemotherapy (OR=1.12, 95% CI 1.06-1.18) while showing significantly decreased odds of primary surgery (OR=0.95, 95% CI 0.90-1.00) or radiation (OR=0.95, 95% CI 0.91-0.98). Conclusions: Our results show significant decreases in overall care and prognosis of SGC in the U.S. with increasing SVI scores while identifying which SDH contribute more to these disparities.

C23. **Examining the Inclusion of OHNS in National Health Policies, Strategies, and Plans**
Julia Canick, AB, Durham, NC; Olivier Mortel, MD, Port-Au-Prince, HT; May Htoo Thaw, MMedSc, Mandalay, MM; Gabrielle Young, BS, Charleston, SC; Titus Ibekwe, MD MPH, Gwagwalada, NG

Educational Objective: To assess the inclusion of otolaryngology-head and neck surgery in global health policy. To highlight potential areas for policy change to support equitable otolaryngologic care.

Objectives: While diseases of the head and neck comprise a significant global burden, public health policy surrounding otolaryngology-head and neck surgery (OHNS) care in lower and middle income countries (LMICs) is understudied. This study aims to characterize the inclusion of OHNS related terms in national health policies. Study Design: Observational review of national health policies, strategies, and plans (NHPSPs). Methods: NHPSPs across five languages were queried using a predetermined list of OHNS related terms (e.g., head and neck cancer, ear and hearing care) as well as comparison terms for conditions that are known funding and policy priorities in global health (HIV, malaria, and tuberculosis). Descriptive statistics categorized mentions of these terms by World Bank income level and World Health Organization region. ANCOVA was used to assess trends in mentions by these subgroupings. Results: Of 194 countries, 124 countries had NHPSPs that were included in the study. OHNS terms were mentioned significantly less (e.g., 5.66% of documents included head and neck cancer; 28.23% included mention of hearing) than were terms related to HIV/AIDS (91.9% of documents) or tuberculosis (87.9%). LMICs were significantly less likely to include OHNS terms than were high income countries. Conclusions: Despite its significant disease burden worldwide, OHNS is severely underrepresented in national health policy. To strengthen the provision of OHNS care within health systems, OHNS should be included in national health policies with an emphasis on LMICs given the disproportionate burden of disease and significant barriers to care.

C24. **Investigating the Relationship between Vaccines and Bell's Palsy: A National Database Study**
Megha Chandna, BS, Philadelphia, PA; Zachary Urdang, MD PhD, Philadelphia, PA; Ayan Kumar, MD, Philadelphia, PA; Eric Barbarite, MD, Philadelphia, PA; Howard Krein, MD, Philadelphia, PA; Ryan Heffelfinger, MD, Philadelphia, PA

Educational Objective: At the conclusion of this presentation, the participants should be able to accurately describe the scientific odds for incident Bell's palsy after vaccination against COVID-19 and other commonly administered vaccines.

Objectives: Test the hypothesis that COVID-19 vaccination is associated with new onset, temporally related Bell's palsy (BP), and that other commonly administered vaccines carry similar odds for this complication. Study Design: Retrospective cohort study using a national electronic health records (EHR) database. Methods: Patient cohorts were queried using the TriNetX US collaborative network. Patient records after 2020 identified who did and did not receive a COVID-19, flu, pneumococcal (PCV13 or PPSV23), or Shingrix vaccine. Odds ratios (OR) for developing Bell's palsy 1-90 days after vaccination were calculated. Raw ORs were adjusted using propensity score matching (PSM) for age, long term use of steroids, type 2 diabetes, and Bell's palsy. Results: Unadjusted odds ratios for all vaccines examined were statistically significant at the 95% confidence level. After PSM, odds for BP were no longer significant for vaccination against COVID-19 nor shingles: ORs (95% CI) 1.10 (0.47-2.59) and 1.60 (0.73-3.53) respectively. Odds for BP after flu and pneumococ-

cal vaccines remained significantly increased: 3.38 (2.14-5.32) and 2.23 (1.16-4.29) respectively. Conclusions: It has been recognized that certain vaccines carry a risk of acute inflammatory neuropathy. Here, we observed that the uncorrected odds for BP are significantly increased for all vaccines with highest odds following older generation vaccines (flu and pneumococcal). After PSM, both newer generation vaccines (COVID-19 and Shingrix) no longer had statistically significant increased ORs. These findings highlight the well known, but exceedingly rare, risk for BP after receiving commonly administered vaccines, and the COVID-19 vaccine is relatively safe in this regard compared to other routinely administered health maintenance vaccines.

C25.   Complications and Serious Adverse Events Associated with Eustachian Tube Balloon Dilation: An Analysis of the MAUDE Database and Literature Review
Paul F. Chisolm, MD, Washington, DC; Amir A. Hakimi, MD, Washington, DC; Jessica H. Maxwell, MD, Washington, DC; Mark E. Russo, MD, Washington, DC

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize both commonly and rarely reported complications following eustachian tube balloon dilation, as well as their treatments and outcomes.

Objectives: To provide an analysis of complications following eustachian tube balloon dilation as well as their treatments and outcomes. Study Design: Rapid review, database analysis. Methods: A systematic approach following PRISMA guidelines was used to identify publications pertaining to balloon dilation of the eustachian tube from PubMed and Ovid Embase databases. Once these publications were critically reviewed, the primary outcome extracted was reported complications. Additional complications were collected in the Manufacturer and User Facility Device Experience (MAUDE) database using the product class "eustachian tube dilation device" and searching through relevant manufacturers. Complications and outcomes were compared between these sources. Results: A total of 56 full length manuscripts involving 7185 patients were included, among whom 98 (1.4%) complications were reported. The most frequently reported adverse events in the literature were subcutaneous emphysema of the head and neck (19%), epistaxis (12%), and acute otitis media (11%). The MAUDE search returned 18 distinct patient entries of which 12 (67%) reported complications. The most reported complications included subcutaneous emphysema (67%) and pneumomediastinum (25%). The most serious complication was a carotid artery dissection reported in one patient (8%). Conclusions: Eustachian tube balloon dilation is rarely associated with complications, which nevertheless may lead to morbidity and medical emergencies. Patients and providers should recognize potential risks associated with this intervention as well as methods to manage complications.

C26. **Disparities in Racial/Ethnic Minority Representation in Latin America Otolaryngologists and Trainees**

Lucas Diniz Costa, MD, Sao Paulo, Brazil; Javier Howard, MD MPH, Palo Alto, CA; Ana Paula Brandao Silva, MD, Sao Paulo, Brazil; Mariane Stagi Almada, MD, Sao Paulo, Brazil; Tulio Valdez, MD MSc, Palo Alto, CA; Robson Capasso, MD, Palo Alto, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss race/ethnicity disparities among otolaryngologists, including in residency programs. Also at the conclusion of this presentation, the participants should be able to find new perspectives on how to address disparities and produce background data to foster diversity among our specialty.

Objectives: We aim to describe the current racial/ethnic profile of Brazilian and Colombian otolaryngologists and trainees relative to the population overall. Study Design: Descriptive - cross-sectional (survey). Methods: Images of board certified otolaryngologists collected from the Brazilian Federal Council of Medicine in January 2022 were classified based on race and gender using the Brazilian Institute of Geography and Statistics (IBGE) definitions. Individuals with poor quality or absent photos were excluded. Self-reported demographic data on current otolaryngology trainees were collected by survey. The most recent national population demographics (from 2019) were collected from the IBGE and Colombia official data source - National Directory of Statistical (DANE). Statistical analysis was performed using Microsoft Excel. Results: A total of 6,825 Brazilian board certified otolaryngologists were identified, 5519 met inclusion criteria; 57% were male, 88.0% were white, 6.9% mixed race (black/white), < 0.002% black and < 0.0001% indigenous. Resident survey responders were 34.5% male, 67.2% white, 24.1% mixed race, 5.2% black and 0% indigenous. The Brazilian population is 42.7% white, 46.8% mixed race, 9.4% black and 1.1% indigenous. In Colombia, the questionnaire answered by residents showed following profile: 52.6% as female and 47.4% as male; 81.6% as mixed race (in Colombia official language, Spanish, "mestizo"), 15.8% as white ("blanco") and 2.6% as black or afrocolombian ("negro" or "afrocolombian"). Colombian population distribution is as follows: 86.69% white and mestizo, 9.34% black (including mulatto, raizal and palenquero), 3.95% amerindian and 0.006% romani. Conclusions: Black, mixed race, and indigenous Brazilians and Colombians are underrepresented among board certified otolaryngologists and trainees. Systematic, evidence based efforts are needed to progress toward health equity in otolaryngology.

C27. **Traumatic Occipital Condyle Fracture (OCF) with Associated Unilateral Vocal Cord Paralysis: A Case Report and Literature Review**

Poonam Dalwadi, BS, Baltimore, MD; Catherine L. Kennedy, MD, Baltimore, MD (Presenter); Sunny Haft, MD, Baltimore, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the association of cranial nerve palsy secondary to trauma from occipital condyle fracture and determine neurologic prognosis from

this injury.

Objectives: To report a case of unilateral vocal cord paralysis secondary to traumatic occipital condyle fracture (OCF), describe its clinical presentation, identify diagnostic tests, and present management techniques; and highlight the role of otolaryngologists in diagnosis and treatment of this condition. Study Design: Presentation of a case with review of literature. Methods: A unique case was identified during inpatient management of this patient's trauma. Medical databases including PubMed/Medline were reviewed to identify similar cases reported in literature. Results: We report a case of a 31 year old female who presented with dysphagia and dysphonia following major trauma. She was found to have an isolated OCF resulting in a right vocal cord paralysis and likely glossopharyngeal nerve palsy. She was treated with vocal cord injection medialization. Return of vocal cord movement was seen 8 weeks following injury, suggesting good prognosis from these type of rare fractures. Conclusions: OCF is a rare injury that can be difficult to diagnose given its nonspecific symptoms. These patients may present with a IX, X, XI, or XII cranial neuropathy following major head and neck trauma. Outcomes are varied with some neuropathies persisting beyond 6 months, suggesting the need for long term treatment options. Otolaryngologists who evaluate trauma patients should be aware of this uncommon diagnosis when working up hoarseness or dysphagia in trauma patients.

C28. The Lifeline Exercise: Improving Trust and Communication via High Performance Team Building in Surgical Trainees
Ilana P. Fischer, MD, Ann Arbor, MI; Peter Kahng, MD, Ann Arbor, MI; Mariel Watkins, MD, Ann Arbor, MI; Pratyusha Yalamanchi, MD, Ann Arbor, MI

Educational Objective: At the conclusion of this presentation, the participants should be able to facilitate a lifeline exercise, a critical element in high performance team building shown to be effective in 1) establishing trust within a team; 2) promoting effective, open communication; and 3) improving the giving and receiving of effective feedback.

Objectives: We show the lifeline exercise, a centerpiece of high performance team building used commonly in management consulting, as an emerging strategy to improve trust and communication in surgical trainees. Study Design: Otolaryngology residents from a large program attended a mandatory retreat, in which the lifeline exercise was facilitated by a senior resident. Residents were then surveyed to assess the effectiveness of this exercise. Methods: Residents were excused from clinical duties to attend a mandatory retreat, with the expressed goals of 1) establishing trust within the team; 2) promoting effective open communication; and 3) giving and receiving effective feedback. The central activity of this retreat was the lifeline exercise, customized with help from Bain and Company's inspirational leadership team. A timeline is drawn longitudinally across on a 10 foot strip of butcher paper, dividing it in half. Participants are instructed to reflect on 3-5 pivotal life events that shaped them as a person and as a surgical trainee, noting each on a Post-It along

with their initials and the year of the event. These are all placed on the butcher paper in chronological order. Each participant then shares their events with the group. Post-exercise surveys were administered and completed by all participants. Results: 100% of respondents (16/16) 'strongly agreed' or 'agreed' that lifeline exercise effectively facilitated the retreat goals of improving emotional self-awareness, vulnerability, and connectedness with others involved in this exercise. Conclusions: The lifeline exercise is an effective method of promoting trust, open communication, and developing the skills of giving and receiving feedback in surgical trainees.

C29. **Predictive Ability of Social Vulnerability Indicators in Obstructive Sleep Apnea Severity**
Andrew Stephen Franklin, BS, Memphis, TN; Chad Alexander Nieri, BS, Memphis, TN; Marion Boyd Gillespie, MD, Memphis, TN

Educational Objective: At the conclusion of this presentation, the participants should be able to 1) understand how SVI scores are generated and their significance; 2) distinguish between the four SVI categories; 3) identify the relationship between increased AHI scores and increased SVI scores; and 4) explore how residence in an area with a larger minority presence can impact AHI.

Objectives: To investigate the impact of neighborhood level social vulnerability on obstructive sleep apnea (OSA) severity in patients undergoing drug induced sleep endoscopy (DISE). Study Design: Single center retrospective cohort study. Methods: Patients 18 years and older that underwent DISE from July 2016-July 2022 were included. Patient addresses were geocoded with geographic information systems, and spatial overlays assigned census tract level social vulnerability index (SVI) scores in four categories. X2 compared categorical variables. Independent sample t test compared continuous variables to determine significant associations. Multivariate stepwise regression model was used to determine the predictive strength of each variable's impact on OSA severity. Results: 165 patients (61.16 years +/- 11.56; 31.04 BMI +/- 6.05) were included. 97 patients had severe (AHI of 30 or greater) OSA. 65 patients had moderate severe (0.5 or greater) SVI scores. Higher SVI values regarding minority status and language, as well as increased BMI, predicted increased apnea hypopnea index (AHI) (p = .003, and less than .001, respectively) in the multivariate stepwise regression model. Race, age, gender, and three other SVI values did not predict AHI severity. No significant relationship existed between VOTE and SVI scores. Conclusions: Adults residing in high social vulnerability areas--specifically larger minority presence or English as a second language--and were obese have increased risk of more severe OSA. Race, gender, and age seemed to not affect OSA. This suggests both neighborhood conditions and obesity influence OSA development. This elevated risk has potential implications for diagnostic testing, clinic followups, screening, and treatment plans for adults residing in disenfranchised neighborhoods.

C30.   **Video Based Decision Aids Improve Sleep Surgery Decision Making: A Randomized Controlled Trial**
Arushi Gulati, BS, San Francisco, CA; Jacquelyn Callander, MD, San Francisco, CA; Yi Cai, MD, San Francisco, CA; Jolie Chang, MD, San Francisco, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to identify the impact of a sleep surgery video decision aid on patient decisional conflict and decision readiness.

Objectives: Decisional conflict is high in obstructive sleep apnea (OSA) patients interested in alternatives to positive airway pressure (PAP) therapy. We evaluated impact of a pre-consultation video based decision aid on patient readiness for medical decision making and surgery. Study Design: Randomized, controlled trial at an academic sleep surgery clinic. Methods: Prior to consultation visit for PAP alternatives, adult OSA patients were enrolled, completed a questionnaire querying decisional conflict (scored 0 [no conflict]-100 [high conflict]), knowledge about surgical treatment options, and decision readiness (scored 0 [not ready]-10 [completely ready]). Patients were then randomized to either watching a video series about PAP and surgical options or standard of care. Results: Seventeen participants (control: n=10, intervention: n=7) interested in PAP alternatives were recruited. In the intervention group, watching the videos did not change readiness to select a treatment option (7.1 +/- 2.5 vs. 7.9 +/- 1.1, p=0.38) and both groups experienced statistically significant post-visit reductions in decisional conflict scores (control: -13.3, p=0.008; intervention: -24.7, p=0.04) that were greater in the intervention group but did not reach statistical significance (p=0.38). Only the intervention group showed significant change in the stage of decision making, with 71.4% reporting "close to selecting an option" (p=0.04) after the visit. Intervention group participants rated the videos to be "very helpful" in the decision making process. Conclusions: Patients have a moderate to high level of decisional conflict when considering surgical alternatives to PAP. Use of a video based decision aids prior to consultation with a physician may be useful in improving surgical decision making.

C31.   **Eating Based Interventions for Taste Disorders**
Alexis Lauren Hartman, BS, St. Louis, MO; Theresa Tharakan, MD, St. Louis, MO; Dorina Kallogjeri, MD MPH, St. Louis, MO; Jay Piccirillo, MD, St. Louis, MO

Educational Objective: At the conclusion of this presentation, the participants should be able to describe how taste dysfunction (dysgeusia) decreases the quality of life of patients affected by chemotherapy, COVID-19, aging, and head and neck cancer. While evidence is inconclusive for pharmacologic treatments of dysgeusia, dietary counseling is beneficial for some patients. The main learning objective includes the understanding that evidence based behavioral interventions, specifically dietary recommendations, are not standardized for treatment of dysgeusia. Our goal is to educate participants on the types of studies and dietary interventions for

varying etiologies and types of taste dysfunction.

Objectives: The purpose is to describe the evidence for eating based interventions for dysgeusia. Study Design: Literature review. Methods: A manual literature search of the online databases PubMed, EMBASE, Cochrane Central Register of Controlled Trials, and Google Scholar was conducted. Original studies in the English language identifying taste dysfunction or food aversions were included when a dietary intervention was suggested. Each study was evaluated based on National Institute of Health Study Quality Assessment Tools. Dietary recommendations were organized based on the specific deficit or etiology of taste disorder. Results: Fifty-eight relevant articles were identified. Thirty-five of 58 (60.3%) described chemotherapy from non-head and neck conditions, 13 (22.4%) in eating interventions in normal conditions, 4 (6.9%) from COVID-19, 2 (3.4%) in head and neck cancer, 2 (3.4%) in the elderly. Twenty-two studies of 58 (37.9%) were qualitative studies, 22 (37.9%) controlled psychophysics experiments, 5 (8.6%) observational studies, 3 (5.17%) clinical randomized control trials, 2 (3.4%) basic science, and 1 (1.7%) nonrandomized control trial. Interventions included increasing amounts of specific seasonings, using visual stimuli or aroma, timing of meals, avoiding specific ingredients. Conclusions: Eating based interventions for taste disorders can be tailored to the etiology and type of taste dysfunction experienced by a patient. Phantom tastes, taste loss, food aversions, hypersensitive taste, or taste abnormalities related to chemotherapy and/or radiotherapy are distinct clinical conditions eating interventions may have varying effectiveness. Future studies should develop and apply systematic evidence based eating recommendations for taste disorders.

C32. **Pregnancy and Parenthood during Surgical Training: Nationwide Survey of Otolaryngology Residents**
Erin Harvey, MD, Milwaukee, WI; Rebecca Rohde, MD, Milwaukee, WI; Abigail Thomas, MD, Milwaukee, WI; Valerie Flanary, MD, Milwaukee, WI

Educational Objective: At the conclusion of this presentation, the participants should be able to reflect on the feelings and viewpoints of otolaryngology residents on pregnancy in surgical residency.

Objectives: Infertility among female physicians is approximately double the rate of the public, with 1 in 4 who attempt to conceive being diagnosed with infertility. We aimed to investigate pursuit of and support of pregnancy in otolaryngology residency. Study Design: Anonymous online survey. Methods: A survey was sent to all American Academy of Otolaryngology-Head and Neck Surgery (AAOHNS) accredited residencies to include both residents and recently (<5 years) graduated faculty. Survey instrument was distributed via email with voluntary participation. Results: Of the 49 participants, 36 (73%) were female; 36 identified as white (73%) and 45 (92%) identified as heterosexual. Thirty-six reported the intention to have biological children. Twenty reported attempts at conceiving, 12 currently have children and 4 have been diagnosed with infertility. Eleven (22%) reported their workplace

structure imparts pressure to delay starting children. Reasons to delay childbearing included financial constraints (24%), fear of adversely affecting education or aspirations (35%), coworker or program perception of you (12%) and fear of being a good parent (14%). Fifty-three percent of respondents felt their career has influenced childbearing decisions. This was not significantly associated with age or average hours worked. Conclusions: Otolaryngologists early in their career feel pressure to adjust their childbearing decisions based on their career choice. This survey highlights critical fertility related concerns and aims to identify gaps in support with our specialty.

C33.   Qualifications for Chairmanship in Otolaryngology Residency
Erin Harvey, MD, Milwaukee, WI; Rebecca Rohde, MD, Milwaukee, WI; Abigail Thomas, MD, Milwaukee, WI; Valerie Flanary, MD, Milwaukee, WI

Educational Objective: At the conclusion of this presentation, the participants should be able to understand current qualifications held by chairmanship in otolaryngology.

Objectives: Recent analyses of otolaryngology leadership have shown underrepresentation in both women and minorities across roles. We aim to analyze chair specific qualifications across otolaryngology programs. Study Design: Retrospective review of otolaryngology programs participating in 2022 match. Methods: A total of 103 current otolaryngology department chairs were analyzed. The position, academic rank, name, gender, research publications, h index and professional societies were collected and recorded from publicly available data. Results: Of the 103 current or interim chairs, the majority were male (87.4%) and Caucasian (79%). Ninety-one (88%) carried the rank of professor, nine (9%) associate professor and one assistant professor. Eleven had previously acquired PhD degrees. Seventy-eight percent were fellowship trained, with the majority being in head and neck surgery (44%). Average h index waw 27.3 +/- 13.4. Thirty-eight NIH funding, on average 2.3 grants (range 1-36). Sixteen were previously program director at their current institution of chairmanship. On average, there were 5.6 years between their awarded position and chairmanship. Conclusions: Research on leadership in otolaryngology has been of recent interest in otolaryngology research. Currently, most otolaryngology chairs are both Caucasian and male, we aim to describe the recent increase in female and underrepresented minorities and their appointments.

C34.   Modified Frailty Index of 2+ Is a Significant Predictor of Adverse Outcomes in Patients Undergoing Uvulopalatopharyngoplasty
Isabel Herzog, BA, Newark, NJ; Dhruv Mendiratta, BS, Newark, NJ; Navya Pendyala, BA, Newark, NJ; Dhiraj Sibala, BS, Newark, NJ; Michael Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand that mFI-5 is a simplistic clinical tool that can be used to identify high risk uvulopalatopharyngoplasty patients and guide operative coun-

seling.

Objectives: The purpose of this study is to assess whether the modified frailty index (mFI-5) is an effective tool for predicting morbidity and mortality in patients undergoing uvulopalatopharyngoplasty: the most common surgery for obstructive sleep apnea. Study Design: Retrospective database analysis. Methods: The 2005-2018 National Surgical Quality Improvement Program Database was queried for patients undergoing uvulopalatopharyngoplasty using CPT code 42145. mFI-5 was calculated on a 0-5 scale based on the presence of congestive heart failure within 30 days prior to surgery, diabetes mellitus, COPD or pneumonia, partially dependent or totally dependent functional health status, and hypertension requiring medication. Results: Patients with mFI-5=2+ were more likely to be older, non-White, inpatient, and have higher BMIs, ASA classification greater than 3, history of CVA/TIA, and cardiac comorbidity than patients with mFI-5=0 or mFI-5=1 (p less than 0.001). Patients with mFI-5=2+ were more likely to experience any postoperative complication (p less than 0.001), death (p=0.002), major complication (p=0.046), minor complication (p=0.009), and extended length of stay (eLOS; greater than 1 day) (p less than 0.001) than patients with mFI-5=0 or mFI-5=1. After adjusting for preoperative differences (excluding variables included in mFI-5 calculations), patients with mFI-5=2+ were 12.769 times more likely to experience septic shock (95% CI: 0.902-180.680, p=0.040) and 1.631 times more likely to experience eLOS (95% CI: 1.112-2.393, p=0.012) than patients with mFI-5=0. Conclusions: Even after accounting for all other preoperative characteristics, mFI=2+ is a significant predictor of septic shock and eLOS in uvulopalatopharyngoplasty. Given its simplicity as a clinical tool, the mFI-5 can be used to identify high risk surgical patients and guide preoperative counseling.

C35. Risk Factors for Postoperative Infection in Adult Tonsillectomy
Isabel Herzog, BA, Newark, NJ; Dhruv Mendiratta, BS, Newark, NJ; Owais Aftab, BS, Newark, NJ; Dhiraj Sibala, BS, Newark, NJ; Michael Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand that smoking history and hypoalbuminemia are independent risk factors for infection after undergoing tonsillectomy. Further, participants should understand that improving preoperative nutritional status and encouraging smoking cessation may reduce infections in adult tonsillectomy patients.

Objectives: Common complications of adult tonsillectomy include pneumonia, hemorrhage, and infection. The purpose of this study is to identify significant risk factors for postoperative infection in adults undergoing tonsillectomy. Study Design: Retrospective database analysis. Methods: The 2005-2018 National Surgical Quality Improvement Program (NSQIP) database was queried for patients undergoing tonsillectomy +/- adenoidectomy using CPT codes 42821 and 42826. Univariate chi square analyses were performed on demographic and risk factor data. Multi-

variate analyses were performed to determine statistical associations of risk factors for infection. Results: Patients with infections were more likely to be older (p less than 0.001), male (p = 0.009), smokers (p less than 0.001), and have diabetes (p = 0.023), hypoalbuminemia (p = 0.002), hyponatremia (p less than 0.001), hypertension (p = 0.011), and pulmonary comorbidity (p = 0.025) than patients without infections. Even after accounting for these preoperative differences, patients with hypoalbuminemia were 2.651 times more likely to experience infection (95% CI: 1.193 - 5.892, p = 0.017) than those with normal albumin. Smokers were 2.130 times more likely to experience infection (95% CI: 1.152 - 3.939, p = 0.016) than patients without smoking history. Conclusions: The findings of this study suggest that smoking history and hypoalbuminemia are independent risk factors for infection after undergoing tonsillectomy. Surgeons should be aware of these risk factors and be observant of early signs of infection in these patients. Improving preoperative nutritional status and encouraging smoking cessation may reduce infections in adult tonsillectomy patients.

C36.   **Subspeciality Trends in Academic Otolaryngology: Demographics and Research Productivity Analyses of 2022**
Isabel Herzog, BA, Newark, NJ; Dhruv Mendiratta, BS, Newark, NJ; Victoria Vought, BA, Newark, NJ; Rita Vought, BA, Newark, NJ; Michael Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize 2022 trends in gender representation, faculty rank, and academic productivity within academic otolaryngology subspecialties.

Objectives: Academic productivity within otolaryngology varies between subspecialties, which influences employment, promotion, and tenure. The purpose of this study is to examine the impact of fellowships on the Hirsch index (h index), relative citation ratio (RCR), and demographic characteristics. Study Design: Retrospective cross-sectional analysis. Methods: Academic otolaryngology residency programs were identified using the 2022 Fellowship and Residency Electronic Interactive database. Data on otolaryngologists was collected using institutional websites. RCR was calculated using the NIH iCite tool, and h index was calculated using Scopus. Mean RCR (m-RCR) is the mean score of an author's publications, signifying impact, and weighted RCR (w-RCR) is the sum of an author's scores, representing research output. Results: Of the 1,949 academic otolaryngologists identified, women were least represented in head and neck (H&N) endocrine surgery (17.31%) and most represented in pediatric otolaryngology (41.80%). Overall, the three most common fellowships were pediatrics (16.3%), H&N surgical oncology (15.9%), and neurotology and skull base surgery (14.5%). It was most common to have completed one fellowship (75.8%). The subspecialty with the greatest proportion of full professors was H&N endocrine surgery (41.18%). The Kruskal Wallis test revealed significant differences in median h index, w-RCR, and m-RCR between subspecialties (p<0.001). H&N endocrine surgery, neurotology and skull base surgery, and sleep surgery had

the highest median h index, w-RCR, and m-RCR, respectively. Pediatrics had the lowest median h index and w-RCR, while facial plastics and reconstructive surgery had the lowest median m-RCR. Conclusions: Trends in gender representation, faculty rank, and academic productivity - both research impact and output - vary by subspecialty in academic otolaryngology.

C37. **Importance of Factors in Residency Decision Making for Female Otolaryngology Applicants**
Meloria Hoskins, MS, Hershey, PA; Molly Piper, BS, Hershey, PA (Presenter); Debarati Bhanja, BS, Hershey, PA; Sarah Strausser, BS, Hershey, PA; Kirsten Mansfield, MPH, Hershey, PA; Jessyka G. Lighthall, MD FACS, Hershey, PA; Amy S. Burns, MD, Hershey, PA

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss residency program characteristics that female applicants value most and apply this knowledge to their residency application process.

Objectives: The purpose of this study was to determine factors that female resident physicians find most influential when choosing an otolaryngology residency program. Study Design: Cross-sectional survey. Methods: Female otolaryngology residents were contacted indirectly via residency program coordinators or directly via email to participate in a survey based study. The survey listed nineteen characteristics of residency programs and asked participants to rate the importance of each factor when selecting a residency program using a 5 point Likert scale. Additionally, participants ranked their top five most influential factors. Data was analyzed using descriptive statistics. Results: One hundred and fifty residents participated. Most survey participants were ages 30-39 (63%), white (70%), and married (43%). The highest scoring factors derived from Likert scale ratings included: resident camaraderie (4.5 +/- 0.8 [mean +/- SD]), resident happiness (4.4 +/- 0.8), and case variety/number (4.4 +/- 0.8). The lowest scoring factors were number of fellows (2.9 +/- 1.1), attitudes towards maternity leave (2.7 +/- 1.3), and maternity leave policies (2.4 +/- 1.2). The top five most influential factors and the percentage of residents selecting this were: resident camaraderie (57%), resident happiness (57%), academic reputation (51%), case variety/number (47%), and early surgical/clinical experience (44%). Gender specific factors were infrequently selected. However, 51 (34%) ranked at least one gender specific factor within their top five list. Conclusions: Gender neutral factors, such as resident camaraderie and surgical experiences, were most valued by women applying to otolaryngology residency programs. Ninety-nine residents (66%) rated exclusively gender neutral characteristics in their list of most influential factors. Our data offer insight into important program characteristics to women entering otolaryngology, which may assist residency programs in matching female applicants.

C38. **WITHDRAWN - Outcomes of Concurrent Hypoglossal Nerve Stimulation and Palatine Tonsillectomy for Obstructive Sleep Apnea**
Phillip Huyett, MD, Boston, MA

C39. **A Rare Case of Acute Development of Posterior Auricular Osteolipoma and Literature Review**
George Jarrouj, BS, Chicago, IL; James Wang, MD PhD, Chicago, IL

Educational Objective: At the conclusion of this presentation, the participants should be able to underestand the presentation of an osteolipoma in the head and neck region along with its related differentials. They should also understand the treatment plan and prognosis of an osteolipoma.

Objectives: Osteolipoma is a rare variant of lipomas characterized by bony formation, occurring in 1% of all lipomas. 38 cases of osteolipomas occurring in the head and neck region have been described in the literature with only two cases reported in the posterior auricular region. Study Design: Case report and review of literature. Methods: A 51 year old male presents with several month history of a left postauricular mass which started to acutely enlarge. He had a remote history 5 years prior of a perforated tympanic membrane. On clinical examination, patient had a 1cm left postauricular mass that was firm, mobile, nontender without overlying erythema, with a firm nodule palpated superiorly. Results: During surgical resection, an adherent mass to the surrounding tissue and muscle was encountered which appeared to be a fatty encapsulated mass with an area of calcification. Pathological evaluation revealed a purple gray soft tissue mass measuring 2.5 x 1.8 x 1cm consistent with intramuscular lipoma with metaplastic bone formation. Conclusions: Osteolipomas are a rare form of lipomas, most commonly found in the oral cavity. Although benign, this case highlights an atypical presentation in the posterior auricular region and the need for surgical excision as differential diagnoses include malignancy such as calcified lymph nodes.

C40. **Experience of Workplace Microaggressions in Otolaryngology: The Western World**
Krystal Y. Kan, MD, Chicago, Il; Jerome R. Lechien, MD PhD MS, Mons, Belgium; Herbert S. Sims, MD FACS, Chicago, IL

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the concept of microaggression, why addressing it is important in respect to the environmental climate and recognize differences in individual experience of microaggression based on race and ethnicity.

Objectives: Microaggressions are indirect or subtle verbal or nonverbal interactions that discriminate against a marginalized group. We aim to characterize the workplace environment in the otolaryngology community. Study Design: Cross-sectional international survey. Methods: Members of the international otolaryngology community were surveyed about their personal or observed experiences of times they felt they or others were treated differently within the past year because of various personal factors including age, biological sex, disability, gender identity, language proficiency, military experience, citizenship, ethnicity, political belief, sexual orientation, and socioeconomic status. Participants were also asked to report

how frequently they experienced certain feelings or negative events within their workplace. This study focused on participants from the U.S., Canada, New Zealand, and Australia. Results were stratified by participant ethnicity. Results: A total of 148 participants completed the survey, including 93 white and 55 non-white participants, respectively. Non-white participants reported significantly higher proportions of observed and personal experiences of microaggression related to citizenship and ethnicity, and personal experiences of microaggression related to language proficiency than white participants (p<0.05). Compared to white participants, non-white participants more frequently felt isolated, experienced more negative social behavior, and more frequently felt pressured to change aspects of themselves in the workplace (p<0.05). Conclusions: Non-white members of the Western otolaryngology community self-reported higher proportions of microaggressions related to citizenship, language proficiency, and ethnicity than white members. Efforts must be made to combat microaggressions and outright discrimination in our workplaces, including a concerted effort to recruit more diverse providers into the field.

C41.   Thyroidectomy Related Posts on a Video Based Social Media Platform: A Thematic Analysis
Yun Ji Kim, BA, Los Angeles, CA; Matthew Lin, BS, Los Angeles, CA; Daniel Kwon, MD, Los Angeles, CA; Kevin Hur, MD, Los Angeles, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the characteristics of thyroidectomy related social media posts on TikTok, the fastest growing social media platform worldwide.

Objectives: Describe the thyroidectomy related content posted, as well as the demographics and engagements of social media users. Study Design: Cross-sectional study. Methods: Videos posted from 4/2020 to 9/2022 were queried on TikTok using the search terms #thyroidsurgery, #thyroidectomy, #thyroidremoval. Two reviewers analyzed these posts and recorded thematic, demographic, and performance data. Descriptive statistics were used to characterize post submitter demographics and video content. Results: In this study, 221 TikTok videos were included which totaled 23 million views. On average, each video accumulated more than 6,000 "likes", 300 comments, and 70 shares. The majority of videos were posted by patients (90.5%) versus healthcare providers (5%). The most common themes recorded were the effect of thyroidectomy on patients' lifestyles postoperatively (39.1%) and patient experience leading up to surgery (19.1%). Thyroidectomies were depicted positively in 48% of the videos versus negatively in 15.4% of the videos. The most common negative portrayal of thyroidectomy was postoperative pain. Conclusions: Social media posts on TikTok about thyroidectomy are largely posted by patients and describe different aspects of the perioperative experience. Given its widespread popularity, these may have an increasing role in shaping patient perception of thyroidectomy and may represent an opportunity to provide appropriate education.

C42. **Investigating Reduction of Hospital Operating Room Waste: An Analysis of Cost Savings through Updating of Surgical Instrumentation Preference Cards**

Joseph G. Kleinsmith, BS BA, Omaha, NE; Tyler J. Connely, BS, Omaha, NE; Lindsay Madej, BSN RN, Omaha, NE; Kristy Carlson, PhD, Omaha, NE; Samuel Pate, MD, Omaha, NE

Educational Objective: Following the conclusion of this presentation, attendees will understand the financial impacts of out of date preference cards. They also will develop an appreciation of the value of consistency in preference cards across multiple operating sites from both an efficiency perspective and a cost savings perspective.

Objectives: This quality improvement project aimed to reduce operating room waste through updating surgical preference cards while improving the consistency of surgical trays in a multisite healthcare system. Study Design: An observational study was performed with individual surgeons across multiple departments at multisite, urban, academic health system. Methods: For each participating surgeon, an evaluation of their most common procedures was completed. Prior to each procedure, a member of the project team met with the surgeon to update individual preference cards. The items removed from the cards were documented and categorized into open costs and total costs based upon the utilization of the instrument. Preference cards across all four sites in the health system were then updated in a central database. Finally, changes in cost were calculated with respect to each location based on the frequency of a specific case. Results: A total of 113 surgical cards for 49 unique procedures across 4 sites were updated during this project. The annual open cost savings for disposable items was $56,455.9. Annual total cost of surgical cards was reduced by $337,056.16. Finally, an analysis of the frequency of a procedure at each site revealed the best opportunity for reducing cost was the second most common site, yielding over 68% of the project's total savings. Conclusions: This study affirms the financial value of maintaining updated preference cards and provides evidence for high yield cost reduction targets at multisite institutions. Additionally, it illustrates the fiscal and operational value of ensuring surgical cards are consistent across locations within a healthcare system.

C43. **Admission through the Emergency Department and Need for a Surgical Airway Drive Facility Discharge for Medicare Patients Admitted for any Otolaryngologic Concern**

Shreyas Govindaranga Krishnapura, BS, Nashville, TN; Jean-Nicolas Gallant, MD PhD, Nashville, TN; Sarah Rohde, MD MMHC, Nashville, TN; David S. Haynes, MD FACS MMHC, Nashville, TN; Eben L. Rosenthal, MD, Nashville, TN; Marc L. Bennett, MD FACS MMHC, Nashville, TN

Educational Objective: At the conclusion of this presentation, the participants should be able to understand variables that affect a Medicare patient's discharge destination and discuss modifiable factors that can lower rates of discharges from a hospital to a facility.

Objectives: Discharging Medicare patients back to their homes following hospital-izations is a valuable clinical performance metric. Numerous factors are involved in a patient's inability to return home; however, these have not been adequately studied for otolaryngology patients. Study Design: Retrospective case controlled study at a tertiary academic medical center. Methods: Five years (2017 - 2021) of Medicare patient admissions resulting in facility discharges were compared to six months of consecutive home discharges. Pre-hospitalization variables were compared amongst groups and to discharge destination using logistic regression. Results: Sixty Medicare patients were discharged to a facility over five years. As compared to 106 control (all Medicare and at least 65 years old) patients discharged home, facility discharges were older (P=0.022), had recent weight loss (P=0.013), and were frailer before their hospitalization (measured by Charlson Comorbidity In-dex, CCI; P=0.042). Female sex (P=0.030), a longer distance traveled to the hospital (P<0.001), a preoperative anesthesia visit (P<0.001), and prior treatment for prima-ry condition (P=0.008) were significant protective factors. Service subspecialty and the presence of malignancy were not found to be significant. Multivariable logistic regression demonstrated that admission via the emergency department (ED; odds ratio [OR]=4.85, confidence interval [CI] 1.30-20.83) and need for a surgical airway (OR=5.54, CI 2.51-12.89) were the only variables significantly related to post-hos-pital facility placement. Conclusions: Age and frailty (CCI) were major predictors of facility discharge. When accounting for all factors, Medicare patients presenting with any otolaryngologic problem are significantly more likely to be discharged to a facility if admitted via the ED or needing a surgical airway.

C44. Correlation between Regional Body Mass Index and Success Rates of Hypoglossal Nerve Stimulator Placement

Kue Tylor Lee, BS, Augusta, GA; Samantha Newman, BS, Augusta, GA; Nicholas E. Fuchs, BBA, Evans, GA; Camillo Reyes Gelves, MD, Augusta, GA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the relationship between regional body mass index and its effect on success rates of the hypoglossal nerve stimulator.

Objectives: Hypoglossal nerve stimulation is an effective method for obstructive sleep apnea patients who cannot tolerate CPAP. Patient selection is essential for a good clinical outcome, a factor being body mass index. Average BMI differs among U.S. census regions which may lead to differing outcomes. This study investigates correlations between regional BMI and success rates. Study Design: Regional data-base observational study. Methods: This study uses data from the ADHERE regis-try divided into regions based on U.S. census (Northeast, Midwest, South, West). Outcome measures included apnea hypopnea index (AHI), Epworth sleepiness scale (ESS), and responder rate. Predictors were BMI and prior nasal and palatal procedures. Results: There was no difference in baseline AHI and ESS. A significant difference in baseline BMI with the Midwest (29.83 +/- 3.77) showing the highest BMI, followed by South (29.36 +/- 3.76), Northeast (29.08 +/- 3.5), and West (28.65

+/- 3.59). Prior nasal and palatal procedure are significantly different among regions. Upon one way ANOVA and chi squared test, there were no differences in outcomes among regions. In multiple regression for AHI reduction, BMI and prior procedures were not predictors. Using Midwest region as a control the West had a significantly lower AHI reduction. Conclusions: Although literature states BMI is a significant factor that attributes to success rates, using U.S. census regional BMI as a predictor does not seem to be a factor. Interestingly, the West had a lower success rate than the Midwest despite a significantly lower BMI. However, this finding could be attributed to the small sample size. Future endeavors in this project should look at a larger sample size.

C45. **The Impact of the COVID-19 Pandemic on Facial Trauma**

Jason H. Lee, MD, Jackson, MS; Alia Tayara, BS, Jackson, MS; James Warren, BS, Jackson, MS; Boris Kuyeb, BS, Jackson, MS; Oishika Paul, MPH, Jackson, MS; Andrea F. Lewis, MD, Jackson, MS

Educational Objective: As the COVID-19 pandemic and subsequent restrictions on daily lifestyles were placed, including travel bans and social distancing, outdoor and social activities contributing to facial trauma were limited. Other studies have demonstrated a decrease in general trauma volume during the pandemic, especially related to motor vehicle collisions, while others have suggested a rise in interpersonal assault and domestic violence. At the conclusion of this presentation, the participants should be able to identify the changing incidences and etiology of facial trauma through the Covid pandemic.

Objectives: The primary aim of this study was to compare the prevalence and distribution of facial trauma mechanism and etiology in our institution prior to and during the first year of the COVID-19 pandemic. Study Design: Retrospective chart review. Methods: Facial trauma injuries occurring between 3/11/2019-3/10/2020, were compared to injuries presenting between 3/11/2020-3/11/2021. In addition to routine demographic information, injuries were categorized based on mechanism (self-inflicted, assault, accidental MVC, accidental non-MVC). In cases of assault, assailant identity (family member, partner/spouse, household member, acquaintance, stranger, unknown) was registered. Chart review was performed in a staggered fashion at equivalent time points throughout both cohort time periods. Results: Of 2302 facial trauma presentations to our institution, a total of 387 facial traumas were assessed, with 247 (64%) in the pre-COVID-19 group and 140 (36%) in the COVID-19 group. Of the 387 patients, 98 (25%) were female, 289 (74%) were male, 172 (44%) were Caucasians, and 192 (50%) were African Americans. Between both periods, no statistical difference in patterns of mechanism of injury was determined (p=0.854). For facial traumas due to assault, no significant difference in assailant identity was determined (p=0.616). Conclusions: Preliminary data suggests no significant change in the etiology of facial trauma during the first year of the COVID-19 pandemic in our state. Our findings may reflect differences in pandemic response by local and state governments. Further analysis to identify demographic contributors to facial

trauma, bony and soft tissue injury patterns, and injury trends along the course of the pandemic are planned for complete examination.

C46. **Comparing Otolaryngology Residency Applicants to Other Surgical Fields' Applicants**
Matthew Ern Lin, BS, Los Angeles, CA; Neil N. Luu, MD, Los Angeles, CA; Neelesh Bagrodia, BS, Los Angeles, CA; Deborah Choe, BA, Los Angeles, CA; Tamara N. Chambers, MD, Los Angeles, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to learn about otolaryngology residency applicant characteristics and how they differ from applicants to neurosurgery, ophthalmology, plastic surgery, urology, and thoracic surgery residency.

Objectives: Assess how otolaryngology residency applicants compare to other surgical subspecialty applicants. Study Design: Retrospective analysis of data from the Texas Seeking Transparency in Application to Residency (STAR) database. Methods: Academic, extracurricular, and application characteristics were collected from all otolaryngology, neurological, ophthalmic, plastic, urologic, and thoracic surgery applicants in the 2021-2022 Texas STAR database. Kruskal-Wallis and Wilcoxon rank sum tests were used to compare differences in applicant characteristics by specialty. Significance was set at $p<0.05$. Results: Among all 447 applicants across six specialties, there was a significant difference in match rate (p =0.002); otolaryngology had the third lowest match rate behind plastic and thoracic surgery. Otolaryngology had a significantly smaller proportion of applicants with nonmedical graduate degrees (p=0.0044), reporting the lowest rate (11.97%) among all specialties. There were significant differences in the average number of interviews (p<0.0001) and programs applied to (p<0.0001) among subspecialty applicants. Otolaryngology applicants received the second fewest number of interviews (11.14) despite applying to the greatest number of programs (83.85). Otolaryngology applicants had the greatest number of volunteer experiences, the second-most number of abstracts, presentations, and posters, and the third-most number of publications; these categories exhibited significant differences (all p<0.0001) between specialties. Differences in the average number of research experiences between specialties approached significance (p=0.0933), with otolaryngology applicants endorsing the most (7.09). Conclusions: Otolaryngology applicants apply to more programs and receive fewer interviews relative to other surgical applicants despite high volunteerism and strong research portfolios. Otolaryngology is just as competitive, if not more competitive, than other peer specialties.

C47.   Do Our Patients Regret Their Otolaryngology Procedures? A Systematic Review

Alice Q. Liu, MD, Vancouver, BC Canada; Brendan McNeely, MD, Vancouver, BC Canada; Eitan Prisman, MD FRCSC, Vancouver, BC Canada; Amanda Hu, MD, Vancouver, BC Canada

Educational Objective: At the conclusion of this presentation, the participants should be able to: 1) discuss decisional regret and its place in shared decision making; 2) identify how patients' decisional regret can vary depending on their otolaryngology treatments; and 3) discuss ways to address lowering decisional regret in their patients.

Objectives: To review decisional regret in adult patients undergoing operative otolaryngology procedures. Study Design: Systematic review. Methods: A comprehensive strategy was designed to search MEDLINE, Embase, and CINAHL (Cumulative Index of Nursing and Allied Health Literature) from inception to September 2022, in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) reporting guideline. Additional studies were identified through reference lists. English language studies of patients greater than 18 years of age who underwent operative otolaryngology treatments and had decisional regret scores (DRS) assessed were included. Data was extracted by two independent reviewers. Risk of bias was assessed with ROBINS-I. Results: In total, 5443 studies were screened by two independent reviewers; 12 studies were included after full text analysis. Subspecialties comprised: head and neck (8), endocrine (2), general (1), and rhinology (1). Decisional regret varied after procedures from no decisional regret (median DRS 0) to mild decisional regret (median DRS 20). Moderate to severe decisional regret was more likely when examining large reconstructive procedures or with patients who underwent multiple treatments (DRS greater than 25). Age, frailty, depression, anxiety, decisional conflict, and intolerance of uncertainty were all correlated with decisional regret. Conclusions: This is the first comprehensive review of decisional regret in otolaryngology. The majority of patients had no to mild decisional regret after operative otolaryngology treatments. Patients reported the least decisional regret after rhinology procedures. Continued efforts in the field should be directed at creating treatment plans to minimize patient decisional regret.

C48.   Distribution of Sleep Medicine Board Certified Otolaryngologists in the United States

Sainiteesh Maddineni, BS, Palo Alto, CA; Javier Howard, MD MPH, Stanford, CA; Samuel M. Cohen, MD PhD, Stanford, CA; Robson Capasso, MD FAASM, Stanford, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the geographic distribution of sleep medicine board certified otolaryngologists in the United States and disparities in patient access to sleep surgery care.

Objectives: Sleep medicine and sleep surgery trained otolaryngologists are unique-ly positioned to play a key role in the diagnosis and treatment obstructive sleep apnea both medically and surgically using emerging technologies. The objective of our study was to examine and depict the geographic distribution of sleep medicine board certified otolaryngologists across the U.S to identify potential disparities in patient access to sleep surgeons. Study Design: This is an observational, cross-sectional, descriptive study using existing databases of sleep surgeons and census data. Methods: We used the 2019 American Board of Otolaryngology (ABOto) directory and national data from the U.S. Census Bureau American Community Survey (2018) to estimate the number and density of sleep medicine board certified otolaryn-gologists per county in the U.S. We also evaluated the average time for patients to access their nearest sleep surgeon using ArcGIS geospatial analysis. Results: We identified an uneven distribution of sleep medicine trained otolaryngologists across the U.S., with the majority located in counties housing major academic medical centers and/or major metropolitan cities. Additionally, there were relatively few sleep medicine trained otolaryngologists in practice overall. ArcGIS analysis identified significant regions in the United States with over 3 hour driving times to access the nearest sleep surgeon. Conclusions: Our study depicts a paucity of sleep medicine trained otolaryngologists with concentrations in a few select regions. Understand-ing distribution disparities is necessary to objectively assess challenges to accessing care for patients in less densely populated regions and is valuable for sleep medi-cine board certified otolaryngologists selecting a marketplace to practice.

**C49.   Determining Efficacy of Simulation Models in Altered Airway
         Management**
         Arushi Prashant Mahajan, BS, Ann Arbor, MI; Madison V. Epperson, MD,
         Ann Arbor, MI; Kyle VanKoevering, MD, Ann Arbor, MI; Robert J. Morrison,
         MD, Ann Arbor, MI

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the role and value of a training model to improve the efficacy of non-otolaryngology provider care of altered airway anatomy.

Objectives: Altered airway anatomy (AAA), including tracheostomies and laryn-gectomies, presents significant confusion for non-otolaryngology providers due to a lack of exposure and dedicated training in management. Inability to effectively stabilize an altered airway is associated with significant risk of patient morbidity and mortality. This study aims to assess the efficacy of a concise, portable curriculum, in conjunction with 3D printed skills trainer, in improving non-otolaryngology pro-vider competency in AAA emergencies. Study Design: Prospective cohort. Meth-ods: Twenty first year anesthesiology residents were guided through a 90 minute curriculum on AAA, including case discussions, videos, and hands on practice with tracheostomy and laryngectomy 3D skills training models. Pre and post course surveys assessing provider confidence (Likert scale) and knowledge (multiple choice questions) were administered. A skills competency assessment was performed fol-

lowing the sessions. Results: Paired t tests of sample means detected a statistically significant increase in perceived confidence after training in six out of seven domains of AAA (p < 0.05 for all six domains). A McNemar's test on the multiple choice question data demonstrated a statistically significant (p = 0.000104) improvement in knowledge base after training. In the completed skills competency assessment, 20/20 learners completed 5/5 assessed tasks successfully. Conclusions: This study demonstrates an improvement in anesthesiology resident self-assessed confidence, objective knowledge, and procedural performance surrounding management of patients with altered airway anatomy following a ninety minute simulation based curriculum.

C50. Perception of Gender and the Association between Surgical Instrument Fit, Competence and Interprofessional Relationships

Angelica M. Mangahas, BS, Rockford, IL; Meghana Babu, MD, Maywood, IL; Rebecca J. Kamil, MD, Rockville, MD; Quintin Williams, PhD, Chicago, IL; Irina A. Buhimschi, MD, Chicago, IL; Heather M. Weinreich, MD MPH, Chicago, IL

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the relationship between gender awareness and perceived competence, interprofessional relationships, and abilities to use surgical instruments in procedural settings.

Objectives: To determine the impact of gender on perceived competence and interprofessional relationships as it relates to the perceived abilities to use surgical instruments and perform procedures. Study Design: Cross-sectional self-reported survey distributed electronically to female physicians. Methods: Latent class analysis categorized 410 female respondents into two clusters with similar glove sizes but differed by hand size perception and difficulties using surgical instruments. Descriptive statistics were performed. Chi square analyzed percent differences between clusters. Logistic regression with stepwise methodology was used to predict respondents' perception of how their gender impacts patients' views of skills, discussion of surgical risks, and treatment by staff/colleagues. Results: Cluster 1 respondents were likely to perceive their hands as smaller than cluster 2 and were more likely to report trouble using instruments. Compared to cluster 2, cluster 1 was more likely to report that their gender negatively affects patients' perception of their skills and ability as a surgeon (72.7% vs. 56.4%, p less than 0.001) and affects how patients discuss surgical risks and benefits with them (48.5% vs. 33.3%, p less than 0.001). In multivariate regression, trouble using instruments increased the odds of reporting one's gender negatively impacted the patient's perception of surgical skills and competence, and how they were treated by nursing staff/colleagues. Conclusions: Regardless of hand size, there is a subset of female physicians whose difficulties using instruments are associated with a greater awareness that their gender negatively impacts patient perceptions.

C51. **Article Retraction in the Otolaryngology-Head and Neck Surgery Literature**
Elizabeth Mastoloni, BA BS, Richmond, VA; Albina Islam, BS, Richmond, VA; Daniel H. Coelho, MD, FACS, Richmond, VA

Educational Objective: At the conclusion of this presentation, the participants should be informed about the most common reasons for article retraction in otolaryngology journals and the implications for the scientific integrity of our field.

Objectives: To characterize retracted articles from the otolaryngology-head and neck surgery (OHNS) literature and analyze the reasons for their retraction. Study Design: Database review (PubMed, EmBase, and RetractionWatch). Methods: Databases were queried for retracted articles with titles relating to OHNS subjects published since 1992. Only articles published in OHNS journals were selected for further analysis. Variables recorded included journal name, journal impact factor, article type, article subspecialty subject, reason for retraction, whether republished, number of authors, and years between publication and retraction. Results: Based on title, 245 articles related to the field of OHNS were identified, of which 68 were published in OHNS journals. Of those 16 (23.5%) were replaced due to erratum concerns (spelling, formatting etc.) rather than content or data related issues. Among the 52 (76.5%) permanent retractions the most common reasons for retraction include article duplication (n= 26), concerns/issues/errors with data (n= 7), and plagiarism (n= 5). Average impact factor across all the permanently retracted articles was found to be 2.38. The subject matter was clinical (n=20), reviews (n=17), and basic science (n=15). The average duration until retraction was 5.6 years, and the average number of citations was 16. Conclusions: Despite increasing education in ethical publication standards and safeguards to identify it when it occurs, retractions still occur in our field. The average retracted article is highly cited and remains in circulation for over five years.

C52. **Minimum Inhibitory Concentration of Essential Oils to Inhibit S. Aureus, MRSA, and P. Aeruginosa**
Christina Matl, MS, Lubbock, TX; James Wang, MD PhD, Chicago, IL; Abdul Hamood, PhD, Lubbock, TX; Joehassin Cordero, MD, Lubbock, TX; Phat Tran, PhD, Lubbock, TX

Educational Objective: Our aim is to explore the potential therapeutic effects of essential oils (EOs) for wound healing by determining the bactericidal effects of EOs and their efficacy in inhibiting biofilm formation.

Objectives: Bacterial biofilm formation can impair wound healing and proves problematic to treat since biofilms have increased antibiotic resistance. Non-antibiotic therapeutics are therefore being explored. Our previous work have demonstrated clove leaf and cinnamon leaf EOs are capable of inhibiting 24 hour biofilms formed by S. aureus (SA), MRSA, and P. aeruginosa (PA). Our objective is to determine the minimum inhibitory concentration (MIC) of clove and cinnamon leaf oils for these

pathogens. Study Design: An in vitro study to determine the MIC of clove and cinnamon leaf oils on various pathogens. Methods: Cellulose disks were subjected to concentrations of 100%, 50%, 25%, and 12.5% of either clove leaf or cinnamon leaf oil and inoculated with overnight cultures of SA, MRSA, and PA. After 24 hours of incubation, remaining bacteria were quantified using a colony forming unit assay. Results: The lowest concentration tested at which cinnamon leaf oil resulted in complete eradication of SA, MRSA, and PA were 25%, 100%, and 100%, respectively. The lowest concentration at which clove leaf oil resulted in complete eradication of SA, MRSA, and PA were 25%, 25%, and 100%, respectively. Conclusions: Overall, clove and cinnamon leaf oil proved equally efficacious at eradicating SA and PA, but clove leaf oil was more efficacious at eradicating MRSA. Both EOs were most effective on SA and least effective on PA. Future experiments will be to determine the efficacy and toxicity of these EOs in vivo experiments to further evaluate if these oils can be used as an alternative to antibiotic treatments.

C53.   **Development of 3D Printed Portable Universal Smartphone Adapter to Record Endoscopic Examinations**
Shadi Mehrabi, MD MS, Ann Arbor, MI; Sharif Salman, BS, Ann Arbor, MI; David Zopf, MD, Ann Arbor, MI

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the value of a 3D printed portable universal smartphone adapter to record endoscopic examinations.

Objectives: To develop a 3D printed portable universal smartphone adapter to record endoscopic examinations. Study Design: Prospective. Methods: CAD software was used to design a universal adapter fit to measurements from a Pentax FNL-10RP3 flexible nasolaryngoscope. The adapter was designed to be lightweight, portable in typical scrub chest pockets, and attachable to any smartphone. Results: The adapter was 3D printed using ABS (acrylonitrile butadiene styrene) filament. The adapter was used for inpatient consultations and allowed for video recording and text messaging of examinations within minutes of the patient encounter. Conclusions: A universal 3D printed smartphone adapter to record endoscopic evaluations can aid in communication of exam findings. This low cost solution has potential applications in low resource environments and provides a solution that withstands intermediate changes in smartphone models. With widespread use, this could also impact advocacy for billing of remote scope examination review, similar to imaging review.

C54.   **Soft Tissue Injury Associated with Neural Integrity Monitoring Endotracheal Tubes: A MAUDE Database Analysis**
Ana Laura Melero-Pardo, BS, Bayamon, PR; Michael Lerner, MD, New Haven, CT

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the risk for potential soft tissue injury with neural integ-

rity monitoring endotracheal tubes which may result in reduced patient harm and possibly design modification in the future.

Objectives: Neural integrity monitoring (NIM) endotracheal tubes (ETT) allow for intraoperative monitoring of the recurrent laryngeal or vagus nerves. Intubation with NIM ETTs can be technically challenging given the importance of accurate positioning of their uniquely designed external electrodes which can result in upper aerodigestive tract soft tissue injury or even device malfunction. There is a paucity of data on adverse events associated with NIM ETT use. This study aims to evaluate adverse events related to NIM endotracheal tubes utilizing the Manufacturer and User Facility Device Experience (MAUDE) database. Study Design: Retrospective cross-sectional study. Methods: The U.S. Food and Drug Administration's (FDA) MAUDE database was queried for reports of adverse events that resulted in patient soft tissue injury involving the use of FDA approved NIM endotracheal tubes between the years 2010 and 2022. Results: A total of 28 cases of upper aerodigestive tract soft tissue injury involving NIM ETTs were identified. The most common type of soft tissue injury reported was laceration (n=13) of the esophagus, larynx, trachea, and soft palate. The second most common type of injury was laryngeal edema (n=7), followed by burns (n=3), granuloma formation (n=2), tracheal perforation (n=2), and hemorrhage (n=1). 9 patients required surgical intervention to address their injuries, specifically 6 tracheotomies and 3 instances where suture repair was necessary. Conclusions: NIM endotracheal tubes' unique anatomy may increase risk for soft tissue injury. The most commonly reported soft tissue injury type was laceration, followed by laryngeal edema and burns. Increased awareness regarding the potential soft tissue injury with NIM tubes may result in reduced patient harm and possibly design modification in the future.

C55. **Analysis of the Relative Citation Ratio in Academic Otolaryngology**
Dhruv Mendiratta, BS, Newark, NJ; Isabel Herzog, BA, Newark, NJ; Rita Vought, BA, Newark, NJ; Victoria Vought, BA, Newark, NJ; Michael S. Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD FACS, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the usage of the relative citation ratio in assessing impact of academic otolaryngologists.

Objectives: Quantification of academic productivity relies on bibliometric measurements, such as the Hirsch index (h index). The National Institutes of Health (NIH) recently developed the relative citation ratio (RCR), an article level, citation driven metric that compares researchers to others within their respective fields. Our study is the first to compare the usage of RCR in academic otolaryngology. Study Design: Retrospective cross-sectional analysis. Methods: Academic otolaryngology residency programs were identified using the 2022 Fellowship and Residency Electronic Interactive database. Demographic and training data were collected for surgeons using institutional websites. RCR was calculated using the NIH iCite tool, and h index

was calculated using Scopus. Mean RCR (m-RCR) is the average score of the author's articles. Weighted RCR (w-RCR) is the sum of all article scores. These derivatives are a measure of impact and output, respectively. The career duration of a physician was categorized into the following cohorts: 0-10, 11-20, 21-30, 31+ years. Results: 1,949 academic otolaryngologists were identified. Men had higher h indices and w-RCRs than women (both p less than 0.001). m-RCR was not different between genders (p=0.083). There was a difference in h index and w-RCR (both p less than 0.001) among the career duration cohorts, but there was no difference in m-RCR among the cohorts (p=0.416). Faculty rank was different for all metrics (p<0.001) with professors having the highest productivity. Conclusions: Critics of the h index argue that this index is reflective of the time a researcher has spent in the field, instead of impact. The RCR and its derivatives may reduce historic bias against women and younger otolaryngologists.

C56. **Regional Disparities in Emergency Department Management of Peritonsillar Abscess**
Asheema Pruthi, MD, Norfolk, VA; Benjamin Rubinstein, MD, Norfolk, VA; Michael Bono, MD, Norfolk, VA; Eric Dobratz, MD, Norfolk, VA; Barry Knapp, MD, Norfolk, VA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand current practice patterns and resource mobilization in the management of PTAs in one regional health system, and the resulting implications on quality of care and ED length of stay.

Objectives: Practice patterns for diagnosis and management of peritonsillar abscess (PTA) can vary widely within regional health systems. Sources of variability include the use of computed tomography (CT) and the need for an emergency department (ED) physician to transfer for otolaryngology consultation. At our major regional medical center, there is one ED with constant otolaryngology coverage. We sought to understand how variability in practice affects quality and ED length of stay (LOS). Study Design: Retrospective review of encounters for sore throat including twelve EDs from 2011 to 2018. Methods: ICD codes were searched for tonsillitis, pharyngitis, and PTA/peritonsillar cellulitis. Datapoints assessed include patient characteristics, imaging, consultation of otolaryngology, treatment planning, and LOS. Results: 37,963 ED encounters were reviewed. The incidence of PTA among those presenting with a sore throat was 5.7%. 990 (45.4%) patients were diagnosed by CT. Use of CT across EDs varied from 13% - 73%. The odds of using a CT were almost 4x higher in a hospital without ENT coverage compared to our hospital with constant ENT coverage. Median LOS with and without CT was 5.0 versus 3.2 hours, respectively (P<0.001). Average ED LOS increased by 0.74 hour when CT was used. Most patients with PTA were discharged, though 269 patients (13%) were transferred for specialty care. Conclusions: Though PTAs can be diagnosed clinically or with ultrasound, almost half of the patients in our region had a CT scan. The utilization of CT imaging varied widely across institutions within one regional health system and was associ-

ated with increased ED LOS.

C57. **Adjuvant Interferon Therapy Is Independently Associated with Improved Outcomes in Cutaneous Melanoma with Parotid Involvement**
Sarah A. Raven, MS, Ann Arbor, MI; Erin Kim, BS, Ann Arbor, MI; Nicholas R. Lenze, MD MPH, Ann Arbor, MI; Janice L. Farlow, MD PhD, Ann Arbor, MI; Scott A. McLean, MD PhD, Ann Arbor, MI

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss the potential survival and recurrence benefits of adjuvant interferon therapy in the treatment of cutaneous head and neck melanoma with parotid gland involvement.

Objectives: To determine the relative 5 year overall survival (OS) and 5 year recurrence free survival (RFS) outcomes for adjuvant therapy in the treatment of head and neck cutaneous melanoma with parotid gland involvement. Study Design: Retrospective cohort study at a single tertiary care institution. Methods: Patients undergoing parotidectomy for cutaneous head and neck melanoma involving the parotid gland from 2000 to 2014 were included in the sample. Time to event analyses were performed using Kaplan Meier Curves with log rank p values and Cox proportional hazards models. Results: There were 95 patients who met inclusion criteria. Twenty-four patients (25.3%) received adjuvant interferon therapy, 18 patients (18.9%) received adjuvant radiation therapy, and 53 patients (55.6%) received no adjuvant therapy. All patients were classified as overall stage 3 disease. Crude 5 year OS rates for no adjuvant therapy, interferon therapy, and radiation therapy were 47.1%, 91.3%, and 38.9%, respectively. Crude 5 year RFS rates were 33.0%, 73.9%, and 24.8%, respectively. After adjusting for T stage, N stage, and overall stage, interferon therapy was associated with significantly improved 5 year OS compared to no adjuvant therapy (HR 0.04, 95% CI 0.01-0.29; p=0.002) and radiation therapy (HR 0.08, 95% CI 0.01-0.60; p=0.015). Interferon therapy was also associated with significantly improved 5 year RFS compared to both no adjuvant therapy (HR 0.19, 95% CI 0.07-0.52; p=0.001) and radiation therapy (HR 0.30, 95% CI 0.10-0.91; p=0.033) in the adjusted model. Conclusions: Interferon as an adjuvant therapy for cutaneous melanoma with parotid gland involvement appears to have robust effect on both recurrence free survival and overall survival.

C58. **Prevalence of Face, Head, and Neck Conditions and Assessment of Surgical Need in Nyarugusu Refugee Camp, Tanzania**
Ashwin Ram Reddy, BS, Baltimore, MD; Alexander Blum, MPH, Baltimore, MD; Hilary Ngude, MD MPH, Dar es Salaam, Tanzania; Joseph Sakran, MD MPA MPH, Baltimore, MD; Kent Allen Stevens, MD, Baltimore, MD; Zachary Obinna Enumah, MD PhD, Baltimore, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the epidemiology of face, head, and neck conditions requiring surgical intervention in the Nyarugusu Refugee Camp and discuss the need

for greater ophthalmologic and otolaryngologic care in low resource and protracted refugee settings.

Objectives: To determine the burden of and surgical need for face, head, and neck (FHN) disease among refugees living in Nyarugusu refugee camp, Tanzania. Study Design: The cross-sectional, cluster based Surgeons Overseas Assessment of Surgical Need (SOSAS) survey tool was administered in the Nyarugusu Refugee Camp between September 2020 and June 2021. Methods: The sample was obtained through a random cluster design. Demographic and clinical data were collected from all selected participants. Univariate and multivariate logistical models were used to explore associations between demographic and clinical characteristics of FHN conditions. Results: Among 3,574 refugees interviewed, 893 (24.9%) reported having a FHN condition within their lifetime and 600 (16.8%) indicated they had a current surgical need for a FHN problem. Of those expressing current surgical need, 40% (n=245) did not access surgical care. The most common types of conditions were non-injury related wounds and non-congenitally, acquired malformations. In the multivariate model, residential zone and nationality were significant demographic predictors of having current surgical need. Pathology type and onset time were significant clinical predictors of current surgical need whereas only onset time remained a significant predictor of having unmet surgical need. Conclusions: There is a high burden of untreated surgical FHN conditions among refugees in the Nyagarusu Refugee Camp. This study highlights the need for targeted interventions to expand surgical capacity for FHN problems in underresourced and humanitarian settings. Expansion of ophthalmologic and otolaryngologic surgical workforce, increased operative capacity, and strengthened referral efforts may alleviate current surgical need.

C59.   Gadolinium as a Contrast Agent for Infusion Sialograms in Patients with Iodine Allergy
Ryan P. Sabotin, BS, Iowa City, IA; Ryan Thorpe, MD, Iowa City, IA; Joan E. Maley, MD, Iowa City, IA; Bruno Policeni, MD, Iowa City, IA; Henry T. Hoffman, MD, Iowa City, IA

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize the importance of conventional sialography in the diagnosis of salivary gland disease, as well as understand the utility of gadolinium as an alternative contrast agent in patients with iodine allergies.

Objectives: To assess the adequacy of gadolinium in sialography as an alternative contrast agent for patients with iodine allergies. To directly compare images taken with gadolinium vs iodine based contrast agents using a sialography classification system. Study Design: Retrospective chart review. Methods: Retrospective chart review was performed on patients who underwent sialography between February 2008 and July 2022. Patients with sialograms obtained with gadolinium were identified and matched to similar sialograms obtained with iodine based contrast agent. Patients were matched based on duct location (parotid vs submandibular), duct

side (right vs left), and initial radiology findings. Blinded reevaluation of selected sia-
lograms was performed independently at first and then by consensus by two head
and neck radiologists to evaluate overall image adequacy and grade abnormalities
using a sialography classification system. Results: 4 patients with 6 sialograms (1
bilateral parotid, 1 parotid+submandibular) obtained with gadolinium were identi-
fied and underwent reevaluation. 5 patients with 6 sialograms (1 bilateral parotid)
obtained with iodine based were matched to the gadolinium sialograms and under-
went reevaluation. The overall adequacy of images for gadolinium sialograms was
graded at an average of 4.25 (4=good, 5=excellent), whereas the overall adequacy
of iodine based sialograms was graded at an average of 5. Interobserver variability
was observed in 3 sialograms obtained with gadolinium (50%), while no interob-
server variability was observed in sialograms obtained with iodine based contrast
agent. Conclusions: Gadolinium is an adequate alternative to use in sialography for
patients with iodine allergies undergoing conventional sialography. Adverse reac-
tions to iodine contrast agents are rare in sialography, with few reports of severe
allergic reactions; however, the precautionary use of gadolinium is acceptable for
the diagnostic and therapeutic benefits in conventional sialography.

C60.   **Altmetric Scores in Open Access and Subscription Based Otolaryngology**
            Journals: The Impact of Online Media Tools
            Nadia L. Samaha, BS, Washington, DC; Jason R. Crossley, MD, Washington,
            DC; Mohamad M. Almasri, BS MBA, Washington, DC; H. Jeffrey Kim, MD,
            Washington, DC

Educational Objective: At the conclusion of this presentation, the participants
should be able to compare the impact of open access and subscription based jour-
nal publications in online media tools and evaluate their correlation with traditional
bibliometric measures.

Objectives: In the age of social media and the rise in popularity of open access jour-
nals and scientific literature accessibility, we sought to determine and compare the
impact of open access and subscription based journal publications in online media
tools measured by altmetric scores and evaluate their correlation with traditional
bibliometric measures. Study Design: Internet based cross sectional study. Meth-
ods: The Altmetric Explorer database was used to search for the three open access
otolaryngology journals (OTO Open, Laryngoscope Investigative Otolaryngology,
and World Journal of Otorhinolaryngology) and three subscription based journals
(Otolaryngology - Head & Neck Surgery, The Laryngoscope, JAMA Otolaryngolo-
gy - Head & Neck Surgery). The numerical altmetric score of all original articles
published between January 2017 and August 2020 was extracted. An independent t
test was conducted and the Pearson correlation coefficients between altmetric and
previously published bibliometric measures were calculated. Results: The analysis
included 3284 articles. There was no statistically significant difference between the
pooled average altmetric score of articles published in open access and subscription
based otolaryngology journals (p=0.3775). The average article altmetric score had a

strong positive correlation (r=0.878) with average article citation number as well as with journal impact factor (r=0.9317). The journal with the highest altmetric score was JAMA Otolaryngology Head and Neck Surgery with 54,425 total social media mentions and an average article altmetric score of 108.2. Conclusions: The online media influence and reach is comparable among otolaryngology open access and subscription based journals unlike the significant difference in their bibliometric measures (citations, last author h index). However, altmetric scores exhibit a strong positive correlation with journal impact factor and citation count.

C61. Disparities among Prospective Otolaryngology Applicants: A Call for Research, Mentorship, and Outreach Efforts in the Field
Nadia L. Samaha, BS, Washington, DC; Mohamad M. Almasri, BS MBA, Washington, DC; Suma J. Alzouhayli, BA, Detroit, MI; Shannon Sturgeon De La Via, BS, Parker, CO; Phillip Q. Richards, BS, Boston, MA; Sonya Malekzadeh, MD, Washington, DC

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the disparities in access to resources that medical students interested in otolaryngology head and neck surgery face and identify ways to address them.

Objectives: Evaluate disparities in access to resources for students interested in otolaryngology head and neck surgery (OHNS) and identify how to address them. Study Design: Cross-sectional survey. Methods: A survey was developed to explore prospective trainees' opportunities and challenges with applying to OHNS. It was distributed nationally via social media and OHNS interest groups. Collected data was stratified into five subcohorts based on students' year. Fisher's test was conducted to uncover univariate associations between access to mentorship, research, clinical exposure in OHNS and gender, ethnicity, and degree type (MD, DO, dual degree). Results: A total of 425 responses were included. There were significant differences in research involvement by degree type among second, third, and fourth year students (p<0.004). Mentorship disparities were found by degree type for second (p<0.008) and third year (p<0.023) students. Clinical exposure to OHNS differed by gender (p<0.04) in third years, as well as ethnicity (p<0.03) and degree type (p<0.009) in second, third, and fourth year students. Students' certainty on dual applying significantly differed by degree type for all years except first (p<0.005) with 82% of all students considering dual applying. Around 20% of students indicated that their demographic background deters them from applying to the field. Students identified faculty or resident mentorship and research opportunities as the most needed resources moving forward and reported peer/faculty mentors and social media as the top sources of obtaining OHNS information. Conclusions: Given the longstanding lack of diversity and increasing competitiveness of the field, intentional research, mentorship, and outreach efforts are needed to target disparities in students interested in OHNS.

C62. **The Medical Student Perspective: How Does the Change in USMLE Step 1 Scoring Influence Attitudes of Future Otolaryngology Applicants?**
Nadia L. Samaha, BS, Washington, DC; Mohamad M. Almasri, BS MBA, Washington, DC (Presenter); Suma J. Alzouhayli, BA, Detroit, MI; Shannon Sturgeon De La Via, BS, Parker, CO; Phillip Q. Richards, BS, Boston, MA; Sonya Malekzadeh, MD, Washington, DC

Educational Objective: At the conclusion of this presentation, the participants should be able to determine the attitudes of medical students interested in otolaryngology head and neck surgery on the recent USMLE step 1 score change.

Objectives: Determine the attitudes of medical students interested in otolaryngology head and neck surgery (OHNS) on the USMLE step 1 score change. Study Design: Cross-sectional survey. Methods: A survey was developed to investigate opinions and concerns surrounding the step 1 scoring change and administered to medical students interested in OHNS via social media platforms and OHNS organizations. Fisher's exact test was conducted to check for univariate associations between attitudes on the score change and medical school tier, preclinical and clinical grading system, and presence of a home OHNS program. Results: Of the 425 responses, 15.8% of students had a numerical step 1 score. The majority of students without scores expressed worry for the score change with 52.5% indicating they were worried, 20.5% were neutral, and 11.3% were glad to not have a numerical step 1 score. The top cited reasons for concern were: medical school reputation, pressure for research and extracurriculars, and higher stakes for step 2. Reasons students were relieved included less pressure during preclinical years and a greater emphasis on personal rather than numerical metrics. There was no association between the level of concern and medical school tier, preclinical grading, and presence of OHNS home program (p=0.128, p=0.136, and p=0.809 respectively). A pass/fail clerkship grading system was associated with significantly higher levels of concern (p<0.001). Conclusions: Medical students interested in OHNS are concerned about the step 1 scoring change. Increased guidance and support will be required to prepare for and navigate the match.

C63. **Accurately Reflecting Otolaryngologic Patient Complexity in Quality Measurement Risk Adjustment Models**
Anirudh Saraswathula, MD MS, Baltimore, MA; Carole Fakhry, MD MPH, Baltimore, MD; David W. Eisele, MD, Baltimore, MD; Matthew Severson, MS, Baltimore, MD; Patricia Dasch, BSN RN, Baltimore, MD; Christine G. Gourin, MD MPH, Baltimore, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the impact of risk adjustment and importance of appropriate and ethical physician involvement in ensuring that patients' complexities are reflected in risk adjustment models for quality metrics.

Objectives: Length of stay (LOS) is a commonly reported quality improvement (QI)

measure used to measure performance against peers and peer institutions, using the observed:expected (O:E) ratio. Risk adjustment for the expected LOS models uses comorbidity diagnosis codes abstracted from provider documentation, but the capture of these variables reflecting patient complexity can vary. We hypothesized that improved documentation of common conditions present on admission (POA) in otolaryngology inpatients would be associated with a lower O:E ratio for LOS. Study Design: QI project. Methods: We developed an electronic health record SmartPhrase for use on admission with dropdown menus including common comorbidities in otolaryngology inpatients to document key POA variables in data sent to external quality reporting agencies and shared with department providers. We calculated the Vizient O:E ratios with and without the SmartPhrase documentation and compared these using descriptive analysis. Results: From September 2021-June 2022, the SmartPhrase was applied to 32/403 (7.9%) discharges and resulted in additional coding documentation in 10 charts (31%). In Vizient models for LOS, SmartPhrase use resulted in 43.3 more expected LOS days, with O:E LOS reduced from 0.95 to 0.75. Conclusions: Use of a SmartPhrase to document key POA diagnoses resulted in improved documentation of variables associated with greater LOS, with reductions in the LOS O:E ratio. While uptake of the SmartPhrase was low, these data demonstrate that when utilized, this documentation aid was associated with more accurate quality measurement that better reflects the complexity of care provided.

C64. **Protecting Patient Privacy in Head CT Scans: Manual and Automated Facial De-Identification Techniques**
Stefanie Seo, BA, Baltimore, MD; Andy S. Ding, MD MSE, Baltimore, MD; Ameen Amanian, MD MSE, Vancouver, BC Canada; Manish Sahu, PhD, Baltimore, MD; Francis X. Creighton, MD, Baltimore, MD; Russel H. Taylor, PhD, Baltimore, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to understand a basic technique for de-identifying head CTs for research purposes and be familiar with basic principles of atlas based segmentation.

Objectives: Recent developments in facial recognition software have introduced the risk of patient identification from three dimensionally reconstructed computed tomography (CT) scans. Current methods of facial de-identification often obscure sinuses, turbinates, and other relevant anatomy in otolaryngology. We present a facial de-identification method that preserves these structures, as well as an automated workflow for rapidly de-identifying large volume datasets. Study Design: Analysis of patient imaging at a single academic institution. Methods: 26 patient cone beam head CTs were included in this study. Using 3D slicer, a seed growing segmentation technique was performed to label the skin around the face. This label was dilated bidirectionally to form a 6 millimeter mask to obscure facial features. To automatically de-identify CTs, an atlas based segmentation method was developed, in which a single head CT and corresponding de-identification mask was deformed to match the contours of other head CTs. Accuracy of this automated method against manual-

ly generated masks were then evaluated with Dice scores. Results: Manual de-identification of the face was successful, preserving nasal turbinates and sinuses in all included datasets upon inspection by two independent reviewers. De-identification masks generated by automated atlas based segmentation overlapped manually generated face masks with a Dice score of 0.667 +/- 0.099. This automated facial de-identification algorithm completed with an average runtime of 129.8 +/- 20.2 seconds per scan. Conclusions: We have demonstrated a reliable facial de-identification method for head CTs, as well as an automated form of this method for batch de-identifying image datasets. These techniques show promise for preventing patient identification while preserving essential underlying sinonasal anatomy for medical image analysis.

C65.   Augmented Otolaryngologic Evaluation in Telemedical Visits
Andre Shomorony, MD, New York, NY; Rachel Weitzman, MD MPH, New York, NY; Hannah Chen, BS, New York, NY; Anthony Sclafani, MD MBA, New York, NY

Educational Objective: At the conclusion of this presentation, participants should understand the diagnostic accuracy of an endoscopic otologic and rhinologic exam performed by the patient, using a portable endoscope and interpreted in real time by a remote otolaryngologist, and about the effectiveness of this strategy for examining patients' nasal cavities and ears during a telemedical visit.

Objectives: To determine the diagnostic accuracy of an endoscopic otologic and rhinologic examination performed by a patient and interpreted remotely by an otolaryngologist and to assess the feasibility of this system when conducting telemedical otolaryngology visits. Study Design: Prospective quality improvement study in academic adult otolaryngology clinic. Methods: 20 healthy subjects presented to an otolaryngology clinic between February and August 2022. Subjects performed a self-examination of their ears and nasal cavities using a commercially available endoscope under remote guidance by an otolaryngology provider over Zoom and subsequently underwent in-person exams by two providers. Subjects were surveyed about their experience. The providers' interrater reliability was calculated using Cohen's kappa coefficients and the ability to detect different anatomic structures and features by in-person examination vs. virtual examination was compared using Wilcoxon tests. Results: The subjects' average age was 30 (SD 11.5) years. The interrater reliability between providers was excellent; kappa coefficients were 0.72 and 0.81 (p < 0.001) for virtual and in-person exams, respectively. Of the 3 anatomic structures within the ear exam, none showed a difference in detectability between virtual and in-person exams. Of the 12 structures in the nasal exam, 4 were better visualized in-person, 1 was better visualized by virtual exam, and 7 showed no difference. Subject satisfaction was excellent; the average likelihood of recommending this virtual technology to peers (1-10) was 8.65 (SD 1.4). Conclusions: Patient self-examination of the ears and nose using a portable endoscope may be a feasible and affordable strategy for obtaining valuable physical exam data during telemedi-

cal otolaryngology visits.

C66. **Distribution of CMS General Payments and Associated Research Funding among Academic Otolaryngologists by Location**
Rohan Singh, BS, Newark, NJ; Dhruv Mendiratta, BS, Newark, NJ; Isabel Herzog, BA, Newark, NJ; Rita Vought, BA, Newark, NJ; Victoria Vought, BA, Newark, NJ; Nilesh Kodali, BS, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the differences in CMS general payment and associated research funding by location in the U.S.

Objectives: CMS general payments are funds distributed to physicians for non-research purposes. Physicians can also acquire research funding which falls under associated research funding. The opportunity to acquire funding as an academic otolaryngologist has not yet been studied. Our study focuses on the influence of location on the availability of research funding for academic otolaryngologists. Study Design: Retrospective cross-sectional analysis. Methods: The 2022 Fellowship and Residency Electronic Interactive database was utilized to identify otolaryngology residency programs. Academic otolaryngologists were selected from identified institutions and demographic data was found on institutional websites. CMS general payment and associated research funding information was acquired from CMS Open Payments database. Results: A total of 1,949 academic otolaryngologists were included, with 32.4% from the Northeast, 24.0% from the Midwest, 14.8% from the West, and 28.8% from the South. CMS general payments were highest in the South, followed by Midwest, West, and Northeast respectively (p equals 0.014). Number of CMS payments followed the same trend (p less than 0.001). There was no difference in associated research funding between the locations (p equals 0.213), however the number of research payments on average was highest in the Midwest, followed by South, West, and Northeast (p equals 0.004). Additionally, physicians have practiced longer on average in the Northeast, followed by Midwest, South, and West respectively (p less than 0.001). Conclusions: Among academic otolaryngologists, CMS general payment opportunity differs by geographical region, while associated research funding may not. Opportunities to acquire either form of funding are lowest in the Northeast.

C67. **Disclosure of Resident Involvement in Surgery in Otolaryngology-Head and Neck Surgery Training Programs: Current Practices**
Miriam R. Smetak, MD MS, Nashville, TN; William T. Quach, BS, Nashville, TN; Kelly C. Landeen, MD, Nashville, TN; George T. Line, BA, Nashville, TN; Alexander Langerman, MD SM, Nashville, TN

Educational Objective: At the conclusion of this presentation, the participants should be able to describe current practices in otolaryngology-head and neck surgery training programs regarding disclosure of resident involvement in surgery, including formal and informal policies, primary responsibility for disclosure, and

preparedness for disclosure. Participants will be able to identify challenges and opportunities regarding appropriate disclosure.

Objectives: The American College of Surgeons (ACS) has defined disclosure of resident involvement in surgery as an integral part of the informed consent process. However, it is not known how these conversations are taking place in current otolaryngology-head and neck surgery (OHNS) residency training programs. This study sought to identify current practices for disclosure, the perceived effect on residency training, and preparedness for appropriate disclosure. Study Design: This was a cross-sectional study conducted using an anonymous survey in REDCap. Methods: Surveys were distributed via email to program directors at all accredited OHNS training programs. General program information was solicited in addition to standard practices and formal policies regarding disclosure of resident involvement within the program and its affiliated institution. Results: Responses demonstrated a lack of standardization in this process. Most respondents lacked a formal policy on disclosure of resident participation or were not aware of formal policies at their institutions, and the person considered primarily responsible for disclosure varied between institutions. Most programs reported little to no training in appropriate disclosure. Conclusions: This study demonstrates a need for increased attention to informed consent policies and practices regarding resident involvement in surgery at OHNS training programs.

C68. **Evaluation of Racial and Ethnic Bias in Letters of Recommendation and Personal Statements in Applications to Otolaryngology Residency**
Taylor Stack-Pyle, BS, Chapel Hill, NC; Garrett Berk, BS, Chapel Hill, NC; Tiffany Ho, BS, Chapel Hill, NC; Abdullah Zeatoun, MD, Chapel Hill, NC; Brent Senior, MD, Chapel Hill, NC; Adam J. Kimple, MD PhD, Chapel Hill, NC

Educational Objective: To elucidate potential racial/ethnic bias within letters of recommendation and better understand barriers that URM students face.

Objectives: The persistent lack of racial and ethnic diversity within the field of otolaryngology calls for an analysis of potential bias within the residency application system. Prior linguistic studies on LORs in other specialties have shown race based biases. This study aims to assess racial and ethnic linguistic differences in LORs and personal statements (PS) for otolaryngology applicants. Study Design: Retrospective linguistic analysis of ERAS applications. Methods: LORs and PSs were abstracted from Oto-HNS applications. Applications were grouped based on self-identified race/ethnicity. Linguistic Inquiry and Word Count 2015 (LIWC2015) was used for quantitative analysis of emotional, cognitive, and structural components. Results: LOR linguistic race pair analysis revealed higher "research" scores for Asian applicants compared to White applicants [1.69% vs. 1.47% p=0.001]. Hispanic applicants had higher "analytic" scores compared to White applicants [85.29 vs. 82.97 p=0.0196]. Analysis of PS's revealed greater 'authentic' scores for White vs. Asian applicants [mean=62.90 vs. 58.40 p=0.0156]. Conclusions: Minor racial and ethnic linguistic differences exist in both LORs and PSs; however, this study did not identify

a systematic bias toward one group. Within LORs, "research" terms (data, study, publication) are used more commonly for Asian vs. White applicants. "Analytic" text (suggestive of a more logical writing style) is used more commonly in Hispanic LORs compared to White LORs. Compared with Asian applicants, White applicants wrote PSs with a more 'authentic' style, indicating a more personal, sincere text. These differences were statistically significant; however, the impact of the variances is likely small.

C69.   Emergency Cricothyrotomy Simulation Using a Composite Task Trainer with High Fidelity 3D Printed Model and Biological Tissue
Sruti Tekumalla, BA, Philadelphia, PA; Lauren Schlegel, BS BA, Philadelphia, PA; Sara Belko, MA, Philadelphia, PA; Robert Pugliese, PharmD, Philadelphia, PA; Morgan Hutchinson, MD, Philadelphia, PA; Richard Goldman, MD, Philadelphia, PA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the positive impact of a high fidelity cricothyrotomy task trainer on otolaryngology and emergency medicine resident education using a simulation format.

Objectives: Emergency cricothyroidotomy is a rare procedure utilized in the salvage of patients who cannot be intubated or oxygenated. We developed a high fidelity task trainer using 3D printing and a porcine soft tissue layer and assessed its use in simulation training sessions. Study Design: The trainer consisted of a highly accurate 3D printed neck and airway model with an overlaid porcine skin and soft tissue layer. Participants included 16 otolaryngology and 30 emergency medicine resident participants. Methods: A survey was administered before and after the simulation. The simulations were completed individually in a case based scenario with vital signs monitors and confederate actors responding to their management decisions. Time to surgical airway decision, initial incision, and successful airway were recorded. The participants debriefed with otolaryngology faculty. Differences among PGY year were analyzed using ANOVA test and linear relationships. Results: Time to incision and successful airway was significantly different among PGY years (p=0.004) decreasing with experience (R2= 0.93, R2= 0.98). Confidence regarding airway anatomy, management and cricothyrotomy performance increased significantly after the simulation (p less than 0.00001). Conclusions: Cricothyrotomy is an essential skill for physicians involved in airway management. With appropriate management, it should rarely be required which results in a lack of experience among trainees. High quality simulation is essential in developing competence with the procedure. The simulator presented here provides a high quality and replicable means of gaining the skills and experience necessary for cricothyrotomy and was highly rated among participants.

C70.   COVID-19 Related Disparities in Care and Complications among American Indian/Alaska Natives: An International Database Study

Zachary David Urdang, MD PhD, Philadelphia, PA; Ethan Arel Paddock, MD, Albuquerque, NM; Sunshine M. Dwojak-Archambeau, MD MPH, Portland, OR

Educational Objective: At the conclusion of this presentation, the participants should be able to describe disparity in COVID-19 related tracheostomy care and complications for people of American Indian/Alaska Native (AI/AN) ancestry.

Objectives: Test the hypothesis that people who identify as AI/AN have higher odds for suboptimal tracheostomy and ventilation associated outcomes. Study Design: Retrospective international cohort study using TriNetX COVID-19 electronic health records (EHR) research database representing ~103.5M-patients from 78 HCOs from 9 countries. Methods: Patients who tested positive for COVID-19 mRNA or ICD-10 code (U07.1) on or after Jan 1, 2020, were stratified by race: white (n=2,200,988) or AI/AN (n=18,123). Odds ratios (OR) with 95% confidence intervals (95%-CI) were calculated for complications/events between 1 day and 1 year after COVID-19. Outcomes were calculated before and after propensity score matching (PSM) for age at index, sex, BMI (9083), type 2 diabetes, chronic lower respiratory disease, ischemic heart disease, heart failure, and cigarette smoking. Results: After PSM, AI/AN with COVID-19 had similar odds for emergency intubation (1.21, 0.90-1.62), and odds for tracheostomy were increased (2.68, 1.72-4.17). AI/AN experienced higher odds for ventilation greater than 96 hours (3.26, 1.86-5.71), ventilator associated pneumonia (4.02, 2.61-6.18), MI (1.62, 1.27-2.06), and death (1.91, 1.64-2.23). Odds for ARDS were decreased for AI/AN (0.56, 0.49-0.65). Furthermore, AI/AN (n=13) were on average tracheostomized 24 days later versus white (n=1,187) (64 days vs 40 days respectively, p=0.36). AI/AN patients (n=112) were also on average intubated 6 days earlier compared to white (n=13,750) (26 days vs 32 days respectively, p=0.30). Conclusions: AI/AN with COVID-19 experienced higher odds for tracheostomy, prolonged ventilation greater than 96 hours, developing ventilator associated pneumonia, MI, and death. Although insufficiently powered, time to emergency intubation was 6 days earlier, and time to tracheostomy after emergency intubation was 24 days longer for AI/AN. These data show that AI/AN experienced worse hospitalization associated outcomes from COVID-19 infection.

C71.   A Natural Language Processing Approach to Uncover Patterns among Online Ratings of Otolaryngologists

Vikram Vasan, BA, New York, NY; Christopher P. Cheng, AB, New York, NY; David K. Lerner, MD, New York, NY; Dragan Vujovic, BA, New York, NY; Maaike van Gerwen, MD PhD, New York, NY; Alfred Marc Iloreta, MD, New York, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to better understand the patient perspective when it comes to interactions with their otolaryngologists.

Objectives: Patients increasingly use physician rating websites (PRW) to evaluate and choose potential healthcare providers. A sentiment analysis and machine learning approach can uniquely analyze written prose to quantitatively describe patients' perspectives from interactions with their physicians. Study Design: Retrospective analysis of Healthgrades.com otolaryngologist reviews. Methods: Online written reviews and star scores were analyzed from Healthgrades.com using a natural language processing sentiment analysis package, generating sentiment scores. Otolaryngologists across all subspecialties from 126 US ACGME accredited programs were included. Demographics of otolaryngologists were compared using student t tests and ANOVA tests while a multivariable regression analysis was conducted to assess the association between sentiment score of a review and individual words. Results: 18,546 online reviews of 1,240 otolaryngologists across the U.S. were analyzed. Average sentiment scores were significantly different between the age groups: under 40 years: 0.630; 40-49 years: 0.587; 50-59 years: 0.536; over 60 years: 0.528 (p below 0.001). Average star score analysis also was significantly different between the four age groups (4.699; 4.452; 4.329; 4.287, respectively) (p below 0.001). The average sentiment score as well as star scores were significantly different between male and female otolaryngologists: 0.609 vs. 0.531 (p below 0.001) and 4.624 vs. 4.342, (p below 0.001), respectively. Words such as "confident" (OR 19.39; p below 0.001), "comfortable" (OR 8.70; p below 0.001), and "kind" (OR 7.19; p below 0.001) were associated with a positive review. Conclusions: Younger age, male gender of the otolaryngologist, and positive physician bedside manner were associated with better sentiment and star scores. Online indications of patient satisfaction with their physicians are important to understand given the increasing popularity of PRWs.

C72.   Comparison of Seniority and Funding within Academic Otolaryngology

Rita Vought, BA, Newark, NJ; Victoria Vought, BA, Newark, NJ; Dhruv Mendiratta, BS, Newark, NJ; Isabel Herzog, BA, Newark, NJ; Michael Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD FACS, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the relationship between seniority and CMS funding within academic otolaryngology.

Objectives: To determine the significance of seniority of otolaryngological faculty and career duration (years since residency graduation) on payments from the Centers for Medicare and Medicaid Services (CMS). Study Design: Retrospective database analysis. Methods: Otolaryngological faculty information across United States residency programs was collected. CMS general payments and number of payments were recorded through the publicly available CMS database. Average CMS payment was calculated by dividing general payments by the number of payments. Payment and residency graduation year (seniority) were available for 1,295 physicians. Faculty rank was recorded as assistant (lowest rank), associate, and professor (highest). The years since residency graduation variable was stratified into four groups: 0-9, 10-19, 20-29, 30 and over. The Kruskal-Wallis test was performed to

determine statistical significance. Results: Each group had 410, 411, 269, and 204 physicians, respectively. There was a difference between career duration and the average CMS payment. (H(3)=47.69, p<0.0001). Average CMS payment size was larger for surgeons who have been in practice for 20-29 years compared to other groups, with a median of 148.86 (IQR, 69.96-479.97). A difference between faculty rank and average CMS payment was also observed (H(2)=72.31, p<0.0001). CMS payments were higher for individuals who held higher faculty rank (median for professors=$140.24, associate professors=$90.33, assistant professors=$79.64). Conclusions: Individuals with professorship and those with 20-29 years of post-residency experience received the greatest average CMS payments. Understanding funding has implications in research productivity, employment, and promotion for otolaryngologists at academic institutions.

C73. **Academic Diversity in Faculty and Leadership at Academic Otolaryngology Departments**

Brendon Kent Warner, MD, Charleston, SC; C. Cooper Munhall, MD, Charleston, SC; Sunny Shah, MD, Charleston, SC; Chada Pitiranggon, BS, Charleston, SC; Terence J.M. Camilon, BS, Charleston, SC; Robert F. Labadie, MD PhD, Charleston, SC

Educational Objective: At the conclusion of this presentation, the participants should be able to appreciate the prior affiliations of clinical faculty and department leadership with academic O-HNS departments, and the potential benefits of increasing academic diversity within O-HNS departments.

Objectives: To assess affiliations of department chairs (DCs) and program directors (PDs) with their own and similarly ranked otolaryngology-head and neck surgery (O-HNS) departments. Study Design: Exploratory study. Methods: O-HNS departments ranked #1-40 were listed according to the 2021 Doximity Residency Rankings. Medical school, residency, and fellowship training was extracted from online directories for all clinical faculty members. Descriptive statistics were used to examine inter and intradepartmental affiliations of faculty, DCs, and PDs. Results: A total of 1,344 clinical faculty including 40 DCs and PDs were identified. Altogether, 596 (44.35%) faculty, 16 (40%) DCs, and 25 (62.5%) PDs had a prior affiliation (PA) with their current department. For DCs and PDs, respectively, 6 (15%) and 13 (32.5%) completed medical school, 14 (35%) and 13 (32.5%) completed residency, and 4 (10%) and 7 (17.5%) completed fellowship at their current institution. For DCs and PDs, respectively, among departments ranked #1-5, 1 (20%) and 4 (80%) had a PA; #6-10, 2 (40%) and 2 (40%); #11-25, 10 (66.7%) and 12 (80%); and #26-40, 3 (20%) and 7 (46.67%). Of the 40 DCs and PDs, respectively, 29 (72.5%) and 26 (65%) completed a top 25 residency and 11 (27.5%) and 14 (35%) completed a residency ranked #26 or greater. Comparing these proportions, it is statistically more likely that DCs and PDs trained at higher ranked programs (p < 0.01). Conclusions: Institutions associated with highly ranked O-HNS departments appear to use prestige and prior affiliation in making department leadership hiring decisions.

C74. **Long Term Cancer Incidence in Obstructive Sleep Apnea Patients Treated with Sleep Surgery Versus Continuous Positive Airway Pressure Alone**

Richard Wu, MPH, Philadelphia, PA; Dylan Bertoni, MD, Philadelphia, PA; Zachary Elliot, BS, Philadelphia, PA; Zachary Urdang, MD PhD, Philadelphia, PA; Maurits Boon, MD, Philadelphia, PA; Colin Huntley, MD, Philadelphia, PA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the potential benefits of sleep surgery in preventing long term cancer in patients with obstructive sleep apnea when compared to treatment with continuous positive airway pressure alone.

Objectives: Compare the 5, 10, and 20 year incidences of cancer developing in patients with obstructive sleep apnea (OSA) treated with sleep surgery versus continuous positive airway pressure (CPAP) alone. Study Design: Retrospective observational study. Methods: Subjects aged 18 and older with obstructive sleep apnea who utilized CPAP or underwent sleep surgery were identified through the TriNetX database. Sleep surgery included upper airway simulation (UAS), uvulopalatopharyngoplasty (UPPP), and tonsillectomy. The top 25 most common cancers globally, as identified by the World Cancer Research Fund, were our outcomes of interest. Odds ratios were calculated for developing each type of cancer at 5, 10, and 20 years following sleep surgery or initiation of CPAP alone. Variables controlled for via propensity score matching included: age, sex, race, body mass index, smoking status, alcohol abuse, and preexisting cancer. Results: Odds of developing lung, prostate, liver, and kidney cancer as well as hon-Hodgkin lymphoma were significantly lower in the sleep surgery cohort at all time points. Odds of developing leukemia, multiple myeloma, and melanoma were also lower in the sleep surgery cohort in the 10 and 20 year analyses. Additionally, odds of developing breast cancer were shown to be significantly reduced in the 5 year analysis only. No cancers at any time point were shown to have increased odds in the sleep surgery cohort. Conclusions: Sleep surgery may provide additional clinical benefit when compared to CPAP alone by reducing long term cancer in OSA patients secondary to improvement in intermittent hypoxia, leading to reduced oxidative stress, DNA damage, and, ultimately, tumorigenesis.

C75. **Telemedicine in Otolaryngology: Recent Usage Patterns and Patient Disparities**

Lucy Xu, MD, Boston, MA; Lauren Miller, MD MBA, Boston, MA; Matthew Naunheim, MD MBA, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to recognize recent trends in telemedicine use in otolaryngology, and to identify patient populations who may be at risk for underutilization of telemedicine services.

Objectives: To characterize the use of telemedicine across otolaryngology subspe-

cialties at a single tertiary care center during and following the COVID-19 pandemic and to identify disparities in patients receiving telemedicine care. Study Design: Retrospective cross-sectional study. Methods: Administrative records were used to extract claims data for otolaryngologic clinical encounters. Encounter types were identified as in person, phone based telemedicine, or video based telemedicine. Descriptive statistics and multivariate logistic regression analysis were performed using Microsoft Excel and Python version 3. Results: A total of 165,969 otolaryngology clinical visits occurred from September 1, 2020, to September 1, 2022, of which 14,245 (7.9%) were via telemedicine. The subspecialties that had the highest proportion of telemedicine visits were facial plastics (19.5%, 95% with video) and rhinology (19.3%, 0% with video). Head and neck had the lowest proportion of telemedicine visits (3.3%). A lower proportion of women received care by telemedicine than in person (39.5% vs 54.8%, p less than 0.001). When stratified by race, a lower proportion of Asian patients also utilized telemedicine compared to in person visits (4.6% vs 5.0%, p equals 0.05), though no significant difference was found across other racial groups (p greater than 0.05). Non-English speaking patients and patients with less than a college level education also utilized telemedicine less than in person visits (p less than 0.001). Conclusions: Consistent with prior literature in other specialties, the current study demonstrates notable disparities among patients who were able to access telemedicine for otolaryngology care during this period. Understanding causes for this discrepancy may help improve equitable access to virtual care in otolaryngology.

C76. Socioeconomic and Gender Disparities in Emergency Department Revisit, Readmission, and Operating Room Revisit in Adult Tonsillectomy
Sophie E. Yu, BA, Boston, MA; Regan W. Bergmark, MD, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to identify patient characteristics that are associated with a higher rate of hospital readmission and operating room revisit as opposed to revisit to the emergency department for adult tonsillectomies, one of the most frequently performed outpatient otolaryngology procedures.

Objectives: Adult tonsillectomy is one of the most frequently performed outpatient otolaryngology procedures. Rates of postoperative complications resulting in revisit and readmission are high. This study aims to identify patient specific factors that impact the rate of postoperative revisit and increase the rate of readmission and operating room revisit as opposed to revisit to the emergency department. Identifying if healthcare disparities exist in the incidence of complications in specific patient populations is important for future policy interventions. Study Design: Retrospective database review. Methods: The state ambulatory surgery database was linked to the state emergency and inpatient databases for New York and Florida from 2016 to identify cases of inpatient and ambulatory adult tonsillectomy, excluding indications for malignancy or combined procedures. Revisits to the emergency department (ED), readmissions to the hospital, and revisit to the operating room within

30 days postoperative were determined. The analysis determined the association of each type of revisit with gender, age, race, ethnicity, type of primary payer, mean population density, and median household income. Results: 5,869 adult tonsillectomies were included, with a revisit rate of 9.75% (62.7% female; 25 years median age [interquartile range: 12]). ED revisit, hospital readmission, and operating room revisit represented 67.3%, 16.4%, and 16.3% of total revisits. On multivariate analysis, nonprivate insurance (Medicaid - OR: 2.10, p<0.001; "other" - OR: 2.18, p<0.001) was associated with a higher odds of revisit compared to private insurance. Male gender (OR: 1.71, p<0.001) and being from the highest income quartile (OR: 3.028, p=0.002) are predictive of readmission instead of ED revisit. These same two factors are also predictive of return to the operating room instead of ED revisit (Male gender -OR: 2.90, p<0.001, highest income quartile - OR: 3.45, p=0.001). Age, race, ethnicity, insurance status, and mean population density are not predictive of readmission or operating room revisit compared to ED revisit. Conclusions: Significant disparities with respect to primary payer status exist in the incidence of revisits. Nonprivate insurance status is associated with a higher rate of overall revisit. While gender and income quartile are associated with high rates of hospital readmission and operating room revisit compared to ED revisit.

Head and Neck
C77.   **Social Determinants of Health and Oncologic Outcomes of Patients with HPV (+) Oropharyngeal Squamous Cell Carcinoma**

Aisha A. Aden, BS, Rochester, MN; Felicia O. Olawuni, MD, Rochester, MN; Chadi N. Abdel-Halim, MD, Rochester, MN; Agnes Q. Zhu, BS, Rochester, MN; David Routman, MD, Rochester, MN; Kathryn M. Van Abel, MD, Rochester, MN

Educational Objective: At the conclusion of this presentation, the participants should be able to identify social determinants of health impacting treatment of patients with HPV (+) OPSCC.

Objectives: Social determinants of health (SDOH) can influence access to cancer care, clinical trials, and oncologic outcomes. We investigated the association between SDOH, distance from treatment center, and treatment type with outcomes in HPV(+) OPSCC patients treated at a tertiary care center. Study Design: A retrospective review. Methods: HPV(+) OPSCC patients treated surgically from 2006-2021 were selected from our OPSCC RedCap database. Demographic data, treatment, and oncologic outcomes were extracted. Distance was calculated, in miles, between the centroid of each patient zip code and our hospital zip code (zipdistance). Results: 874 patients (89% male; mean age: 58 years) were identified. Most patients (96%) reported Non-Hispanic White as their primary race. 204 patients (23%) had a high school degree or less, 217 patients (25%) reported some college education or a 2 year degree, 153 patients (18%) completed a four year college degree, and 155 patients (18%) had post-graduate degrees. Relative to those with a high school degree, patients with higher levels of education were more likely to live further away from our institution (p<0.0001). Patients who received adjuvant radiation therapy else-

where lived, on average, 104 miles further away than patients receiving radiation at our institution (Estimate 104.3, 95% CI 14.2 to 194.4, p-value=0.02). In univariable Cox PH models, oncologic outcomes did not significantly differ by zipdistance. Conclusions: Education level--and access to resources--varied proportionally to a patient's distance from our center. However, zipdistance was not associated with oncologic outcomes. Breaking down barriers to currently excluded populations may improve access to clinical trials and improve oncologic outcomes for diverse patient populations.

C78. Oncologic Impact of Retropharyngeal Lymph Node Involvement in Patients Undergoing Transoral Robotic Surgery for Squamous Cell Carcinoma
Aarti Agarwal, MD, Philadelphia, PA; Sruti Tekumalla, BA, Philadelphia, PA; Ramez Philips, MD, Philadelphia, PA; Adam Luginbuhl, MD, Philadelphia, PA; David Cognetti, MD, Philadelphia, PA; Joseph Curry, MD, Philadelphia, PA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the impact of a pathologically positive retropharyngeal lymph nodes in oropharyngeal squamous cell carcinoma.

Objectives: The impact of prognosis for head and neck oncologic patients with retropharyngeal lymph node (RPLN) involvement remains unclear. Our objective is to evaluate the survival outcomes of patients with RPLN and more clearly define RPLN as a prognostic predictor. Study Design: Retrospective chart review. Methods: This was a retrospective analysis of 491 patients with primary oropharyngeal cancer undergoing transoral robotic surgery (TORS) from 2010-2021. PET-CT and/or contrast enhanced MRI were used to assess for the clinically RPLN positive cohort. Patients with pathologically positive retropharyngeal nodal specimen at the time of TORS resection were recorded. 3 year overall and disease free survival were compared for patients with and without retropharyngeal involvement. Multivariable regression analysis identified predictors of worse survival. Results: 13 (2.6%) of all primary oropharyngeal tumor patients had pathologically positive retropharyngeal lymph node involvement. Patients with retropharyngeal lymph node involvement had worse 3 year disease free survival (67.5%, vs 94.6% p = 0.006) and worse 3 year overall survival (97.2% vs 65.6%, p = 0.035). Multivariable cox regression identified retropharyngeal node involvement, low BMI, advanced Charlson comorbidity index (CCI), and advanced N classification as independent predictors of worse overall survival and worse disease free survival. Conclusions: Retropharyngeal lymph node involvement is present in 2.6% of patients undergoing transoral robotic surgery for squamous cell carcinoma. Retropharyngeal lymph node involvement leads to worse overall and disease free survival after adjusting for confounding factors.

C79. **Core Needle Biopsy Validation of TI-RADS Score in Thyroid Nodule Assessment**

Kelvin Anderson, BS, Buffalo, NY; Adam Abbas, BS, Buffalo, NY; Kia Jones, MD, Buffalo, NY; Kimberly Wooten, MD, Buffalo, NY; Ayham Al-Afif, MD, Buffalo, NY; Vishal Gupta, MD, Buffalo, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to determine the predictive value of TI-RADS score relative to core needle biopsy in thyroid nodule assessment.

Objectives: Advancements in imaging and histopathology have allowed for improved triaging of thyroid nodules. The American College of Radiology has proposed the Thyroid Imaging and Reporting and Data System (TI-RADS) for scoring ultrasound characteristics of thyroid nodules. Core needle biopsy (CNB) has emerged as a highly sensitive means of describing thyroid nodules and guiding treatment planning. The Korean Endocrine Society (KES) has developed a grading system to evaluate CNB. We sought to determine how well ultrasound derived TI-RADS scores relate to CNB pathology and KES grades. Study Design: A retrospective chart review was performed for all patients seen in our department with thyroid pathology from 2020-2022. Methods: We identified 94 patients (111 nodules) that received TI-RADS score followed by CNB. KES grades were assigned from pathological descriptions by trained head and neck physicians in a TI-RADS blinded manner. Data were analyzed using Spearman correlation and Pearson chi square tests with statistical significance at $P<0.05$. Results: Nodules analyzed covered the full range of TI-RADS scores and CNB diagnoses, with clusters of hyperplastic and malignant nodules. TI-RADs scores strongly correlated with KES grades, and TI-RADs was useful in predicting need for further investigation. We will report diagnostic characteristics of TI-RADS relative to CNB. Conclusions: In our practice, TI-RADS scores and tumor size, along with clinical presentation, guide biopsy recommendations. Retrospective analysis suggests that ultrasound evaluation with TI-RADS is highly reliable and can minimize unnecessary biopsies. Future studies will examine the correlation of specific ultrasound characteristics with CNB and surgical pathology to further define the screening value of TI-RADS.

C80. **Vaping, the Oral Microbiota, and Oral Carcinogenesis: A Review of the Literature**

Luka Bahra, BS, Parker, CO; Estelle Viaud-Murat, BS, Dayton, OH; Amanda Brooks, PhD, Ivins, UT

Educational Objective: At the conclusion of this presentation, the participants should gain a fundamental understanding of the oral microbiota, its relative composition in a healthy state, and the concept of dysbiosis. Additionally, participants should understand the potential pathophysiological changes electronic nicotine delivery systems (ENDS), or vaping, may elicit within the oral cavity and how such changes may contribute to the development of a dysbiotic state. In doing so, participants should be able to observe the potential contribution ENDS have in oral

carcinogenesis and its significance in consideration of the current vaping epidemic.

Objectives: 1) Establish the relative composition of the healthy oral microbiota (OMBA) in the adult population; 2) explain the concept and clinical significance of oral dysbiosis; 3) describe oral pathophysiological changes secondary to electronic nicotine delivery systems (ENDS) use; and 4) demonstrate the potential etiological impact of ENDS in microbial induced carcinogenesis. Study Design: Literature review of the oral microbiota, the development of oral dysbiosis, ENDS associated pathophysiological changes within the oral cavity, as well as the associations with oral carcinogenesis. Methods: The literature published from 2000-2022 pertaining to the OMBA, dysbiosis, ENDS, and oral carcinogenesis was reviewed within the PubMed database. The Human Oral Microbiome Database was accessed for additional data. Results: Within the oral cavity resides an elaborate system of microorganisms that in healthy states is predominated by the firmicutes, bacteroidetes, actinobacteria, proteobacteria, fusobacteria, and spirochaete phyla (96%). Dysbiotic states may enhance the emergence of carcinogenic species or modulate the inflammation status to indirectly promote oral carcinogenesis. A loss of richness and diversity of commensal species at malignant sites has been seen and some studies correlate certain species like streptococcus mitis with oral squamous cell carcinoma, however results varied. Pathophysiological changes associated with ENDS use include oxidative stress, DNA damage, altered innate host responses, and inflammation. Such changes may contribute to oral dysbiosis, disease and carcinogenesis. Conclusions: The literature demonstrates that the OMBA is symbiotic in health, and dysbiotic in disease. Dysbiotic states have been implicated in oral carcinogenesis. ENDS use induces pathophysiological changes that may put users at risk of developing oral cancers. Future studies should investigate ENDS' etiological impact and the diagnostic value of microbial alterations.

C81. **Postsurgical Adjuvant Therapy in Oropharyngeal Cancer Patients with Lymph Nodes Greater than 3 Centimeters: The Correct Approach?**
Anyull Dayanna Bohorquez Caballero, IMG, Jacksonville, FL; Karol Avila-Castano, MD, Jacksonville, FL; Srivatsa Surya Vasudevan, MD MS, Jacksonville, FL; Estephania Candelo, MD MSc, Jacksonville, FL; Gian Piero Carames, MD, Birmingham, AL; Phillip Pirgousis, MD DMD, Jacksonville, FL

Educational Objective: At the conclusion of this presentation, the participants will evaluate the need for research to strengthen the current recommendations on adjuvant treatment for patients with tonsillar and base of tongue cancer. Additionally, they will consider a need for balancing aggressive adjuvant therapies with surveillance.

Objectives: To evaluate the effect of pathological lymph node size as criteria for electing a postsurgical adjuvant therapy in oropharyngeal carcinoma patients. Study Design: Retrospective cohort study. Methods: Single institution retrospective chart review of 138 patients diagnosed with tonsils or base of the tongue cancer between 2006 and 2022. A total of 99 patients with surgical treatment as first ap-

proach were included in this study. Subgroup analysis was performed based on the postoperative lymph node size with a cutoff of 3 centimeters. Results: Of the 99 patients in our study, 73/99 (73,7%) had early stage disease, and 97/99 (98%) had neck dissection. A pathological positive lymph node was seen in 80/99(80.0%), among whom 25 (31,5%) were smaller than 3 centimeters and 45 (56,2%) equal or greater than 3 centimeters. 65,7% of patients with lymph nodes smaller than 3 centimeters received adjuvant therapy (chemotherapy, radiation, or chemoradiation) compared with 61% in the second group (p=0.32). No statistically significant differences were found during the followup between patients with lymph nodes greater than 3 cm and smaller than 3 cm in the following oncological outcomes: extranodal extension, lymphovascular invasion, perineural invasion, and cancer relapse. Conclusions: A lymph node cutoff of 3 cm alone is not a significant criterion to address the post-surgical treatment of patients with base of the tongue and tonsillar cancer. Further research must confirm if the lymph node size cutoff should be reassessed.

C82. **Effectiveness of Social Media Advertising on HPV Vaccination in Adult Men**
Kathryn Mackenzie Carlisle, BA, Hershey, PA; Karen Choi, MD, Hershey, PA

Educational Objective: At the conclusion of this presentation, participants should be able to improve awareness of HPV associated cancers and HPV vaccination among adult males.

Objectives: To determine if social media is effective for educating adult men about the HPV vaccine and to understand perceptions towards vaccine hesitancy. Study Design: Pre-post prospective interventional study. Methods: A Facebook and Instagram social media campaign ran from April to July 2022 targeting HPV unvaccinated men, ages 18-45, who lived within 30 miles of an academic institution followed by a post-campaign survey. Data was analyzed using Fisher's exact and Wilcoxon two sample tests. Results: 19,749 men were included in the campaign. Men engaged more when content included statistics and suggested contacting their physician, but less when vaccine specific copy was used. Response rate for the post-campaign survey was 2.6% (470/18,010). 83% of respondents were white, 74% held college or graduate degrees, and 59% were married. 6% received the vaccine in the past 6 months; 38% of those reported seeing an advertisement. Primary motivations included wanting to protect themselves from HPV (73%) or cancer (73%). Reasons for not receiving the vaccine included: not applicable based on gender (13%), sexuality (7%), age (15%), or relationship status (15%), perceived safety (11%), no knowledge of HPV/vaccine (24%), or lack of time (5%). 12% of those who didn't receive the vaccine reported they would get it in the future. 20% had never been offered the vaccine. 3% reported they would personally request the vaccine from their doctor in the future. Conclusions: Social media can be used as an educational adjunct but education provided by patients' physicians remains an important intervention in raising awareness of the importance of HPV vaccination.

C83. **Association between Hypoalbuminemia and Postoperative Outcomes of Thyroidectomies**

Sree Chinta, BS, Newark, NJ; Dhiraj Sibala, BS, Newark, NJ; Dhruv Mendiratta, BS, Newark, NJ; Navya Pendyala, BS, Newark, NJ; Michael Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to identify hypoalbuminemia as an indicator of malnutrition that may be associated with systemic and inflammatory diseases. As such, hypoalbuminemia, especially at more severe levels of less than 2.5 g/dL, are associated with greater postoperative complications in patients undergoing thyroidectomies.

Objectives: The National Surgical Quality Improvement Program (NSQIP) database was queried for patients who underwent thyroidectomies between 2005 and 2018. Univariate and multivariable analyses were conducted to determine associations between albumin levels and postoperative complications. Study Design: Retrospective database review. Methods: The National Surgical Quality Improvement Program (NSQIP) database was queried for patients who underwent thyroidectomies between 2005 and 2018. Univariate and multivariable analyses were conducted to determine associations between albumin levels and postoperative complications. Results: 41,235 patients undergoing thyroidectomies were stratified into albumin less than 2.5 g/dL (n=188 [0.5%]), albumin 2.5-3.0 g/dL (n=446 [1.1%]), albumin 3.0-3.5 g/dL (n=2,222 [5.4%], and albumin greater than 3.5 (n=38,379 [93.1%]). Univariate analysis showed that hypoalbuminemia was associated with older age, male gender, and higher ASA class, and a greater proportion of smoking, diabetes, dyspnea, COPD, hypertension, bleeding disorders, and steroid use. Hypoalbuminemia was associated with a higher rate of cumulative wound infections, cumulative medical complications, DVT, bleeding requiring transfusions, cumulative morbidity, extended length of stay, and unplanned readmission. On multivariable analysis, patients with normal serum albumin were found to have lower odds of cumulative medical complications (OR=0.134, CI: 0.090-0.200, p<0.001), bleeding requiring transfusion (OR=0.133, CI: 0.072-0.247, p<0.001), cumulative morbidity (OR=0.155, CI: 0.106-0.229, p<0.001), extended length of stay (OR=0.065, CI: 0.046-0.093, p<0.001), and unplanned readmission (OR=0.373, CI: 0.226-0.617, p<0.001). Conclusions: This study finds that patients with hypoalbuminemia who are undergoing thyroidectomy have greater odds of cumulative medical complications, bleeding requiring transfusion, sepsis, cumulative morbidity, extended length of stay, and unplanned readmission.

C84. **Impact of Insurance Type on Outcomes and Cost of Tracheostomies**

Sree Chinta, BS, Newark, NJ; Keshav Dilip Kumar, BS, Newark, NJ; Dhiraj Raju Sibala, BS, Newark, NJ; Owais Aftab, BS, Newark, NJ; Michael Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to identify insurance status as an important social determinant of

health that has implications for postoperative complications for patients undergoing tracheostomies.

Objectives: To determine if there is an association between the insurance type of patients and the outcomes of tracheostomies. Study Design: Retrospective database review. Methods: The 2017 National (Nationwide) Inpatient Sample (NIS) was reviewed using ICD-10 procedure codes for tracheostomies and ICD-10 diagnosis codes for postoperative complications related to tracheostomies. Chi square tests were used for univariable analysis. Multivariable analysis was used to assess the independent effect of covariates on the total charges for procedures, length of stay, and complications. Results: 17,212 patients were identified who underwent a tracheostomy. The mean age was 58.22 (0-90). Univariable analysis showed that Medicaid was associated with higher total charges ($654,510.68 vs $481,462.99 vs $569,518.22, $p<0.001$, $p<0.001$), incidence of all tracheostomy complications (6.2% vs 4.7% vs 4.8%, $p<0.001$, $p<0.001$), and incidence of any complication (9.8% vs 7.6% vs 7.8%, $p<0.001$, $p<0.001$) compared to Medicare and private insurance holders, respectively. On multivariable analysis, total charges were greater for Medicare patients (mean: $481,462.99) than Medicaid patients (mean: $654,510.68, $p<0.001$) after adjusting for demographic variables. Length of stay (LOS) was higher for Medicare patients (mean: 27.24) than patients with private insurance (mean: 30.93, $p=0.006$) but lower than for Medicaid patients (mean: 42.05, $p<0.001$). Patients with private insurance were less likely than Medicare and Medicaid patients to have any complication (OR 0.916, 95% CI 0.853-0.985, $p=0.017$; OR 0.870, 95% CI 0.810-0.934, $p<0.001$) and other tracheostomy complications (OR 0.630, 95% CI 0.517-0.768, $p<0.001$; OR 0.777, 95% CI 0.647-0.933, $p=0.007$). Conclusions: This study revealed that patients with private insurance are associated with decreased length of stay, incidence of any complication, and other tracheostomy complications compared to Medicare and Medicaid patients.

C85. **Factors Influencing Delay in Diagnosis of Head and Neck Cancer in Rwanda**

Alyssa Civantos, MD, San Francisco, CA; Hirwa Nteyumwete, MD, Kigalie, Rwanda; Gaelen B. Stanford-Moore, MD MPhil, San Francisco, CA; Jenny Yau, BA BS, Boston, MA; Isaie Ncogoza, MD, Kigali, Rwanda; David A. Shaye, MD MPH, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to identify contributing factors to delays in head and neck cancer diagnosis in Rwanda, which may help guide improvements in care.

Objectives: Head and neck cancer is a significant contributor to global otolaryngologic disease burden, with a disproportionate impact on low and middle income countries. This study investigates the contributing factors to delays in presentation and diagnosis of head and neck cancer patients at the University Teaching Hospital of Kigali (CHUK). Study Design: Prospective study of patients with a pathologic diagnosis of head and neck cancer presenting to CHUK between January 2021 to

June 2022. Methods: Sociodemographic data, tumor characteristics, and reasons for delay were collected. Univariate and multivariable analyses were undertaken. Results: The study included a total of 81 patients. The median duration from patient first reported symptoms to initial medical consultation was 52 weeks, from first medical consultation to referral to CHUK was 4 weeks, and from referral to CHUK to final pathologic diagnosis was 6 weeks. The most common reason for delay to presentation at CHUK was lack of ability to pay (37.04%). On multivariable analysis, patients who visited traditional healers had higher odds of delay between symptom onset and first medical consultation (OR 3.12, CI 1.05-9.24). Delays in pathologic diagnosis after referral to CHUK were most commonly due to lack of OR availability for biopsy (37.04%) and delay to get histology (35.80%). On multivariable regression, those with delay due to OR availability had higher odds of a longer delay (OR 37.01, CI 6.27-218.46). Conclusions: Understanding the reasons for delayed diagnosis of head and neck cancer may help guide improvements in care with the goal of reducing global head and neck burden of disease.

C86. **WITHDRAWN - Investigation of Early Neoplastic Transformation of Head and Neck Squamous Cell Carcinoma Using Genetically Engineered Organoid Mouse Models**
Casey Collet, BS, Los Angeles, CA; Hua Zhao, MD, Los Angeles, CA; Uttam K. Sinha, MD, Los Angeles, CA; De-Chen Lin, PhD, Los Angeles, CA

C87. **Characterizing Differences between Young Female and Male Patients with Oral Squamous Cell Carcinoma: A United States Population Based Analysis**
Calista Dominy, New York, NY; Vikram Vasan, BA, New York, NY (Presenter); Scott Roof, MD, New York, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the differences between young male and female patients with OSCC considering the recent rise in incidence within this population.

Objectives: There has been an increase in the incidence of young patients with oral squamous cell carcinoma (OSCC) without enough attributable risk factors. Some of this increase can be attributed to a rising incidence in young females aged 45 or younger. Gender based differences in head and neck cancers have been previously described, but little is known about the demographic, clinical, and epidemiologic differences between young females and males with OSCC. Study Design: A retrospective analysis of the Surveillance, Epidemiology, and End Results 2000-2019 registry. Methods: All patients 45 or younger with OSCC were included. Demographic, clinical, and survival data were collected and compared between females and males. Results: 1,739 young females and 3,637 young males with OSCC were extracted. More young females with OSCC were Hispanic (13.2% vs. 11.5%; p=0.014). Young females had more localized disease (46.3% vs. 39.6%), less distant metastatic disease (6.4% vs. 7.2%), and less regional spread (25.0% vs. 27.2%) (p below 0.001). The tongue was the most frequent site of presentation in females (77.8% vs. 62.7%;

p<0.001), while the lip was in males (7.6% vs. 16.8%; p below 0.001). Young females had a near significant difference in cancer specific mortality (23.6% vs. 26.0%; p=0.065), but no difference in 5 year overall survival (p=0.802). Conclusions: Young females with OSCC had mostly tumors of the oral tongue, while males had comparatively more lip tumors. Young females were more Hispanic and tended to present with less aggressive disease. However, once young patients developed OSCC, their 5 year survival was similar, but with a trend towards less cancer specific mortality in young females.

C88. **The Impact of Race, Socioeconomic Status, and Geographical Location on Survival in Patients with Anaplastic Thyroid Cancer: A Population Based Analysis of the SEER Database**
Calista Dominy, BS, New York, NY; Vikram Vasan, BA, New York, NY (Presenter); Scott Roof, MD, New York, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to understand factors that impact survival for patients with anaplastic thyroid cancer, the most aggressive form of thyroid cancer.

Objectives: Anaplastic thyroid cancer (ATC) is rare, yet the most aggressive form of thyroid cancer. Average survival rates are well established at approximately 6 months. However, less is known about how racial, socioeconomic, and geographical factors impact survival. The aim of this study was to explore the association between these factors and cancer specific survival (CSS) in patients with ATC. Study Design: A population based retrospective study using the Surveillance, Epidemiology, and Ends Results database from 2000-2019. Methods: Patients with ATC were extracted and then stratified based on race, socioeconomic status (SES) by income level, and geographical location by urban/rural classification. Comparative univariate analyses to CSS were performed. Factors with p<0.05 were analyzed in a multivariable regression model of CSS while adjusting for age, sex, treatment modality, and tumor stage. Results: 2,541 patients with ATC were identified. On univariate analysis, there was a significant difference between races for cancer specific mortality (White: 67.15% vs. 61.52%; Black: 6.76% vs. 8.55%; Asian: 10.88% vs. 10.97%; p=0.017). There were no differences CSS between geographical locations or socioeconomic status. Multivariable analysis revealed that White patients were more likely to experience cancer specific death compared to non-White patients (OR=1.34; 95% CI=1.06-1.69). Conclusions: While previous thyroid cancer studies have shown non-White patients to be at risk for worse survival, this study found that White patients were more likely to experience ATC specific death compared to non-White patients.

C89. **Early Postoperative Circulating Tumor DNA Kinetics**
Vasileios Efthymiou, MD, Boston, MA; Saskia Naegele, BA, New York, NY; Markus Haas, MD, Vienna, AT; Deborah Goss, MA, Boston, MA; Daniel L. Faden, MD, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss the use of circulating tumor DNA (ctDNA) as a potential biomarker for minimal residual disease (MRD) detection across different cancer types, with a specific focus on HPV associated head and neck cancers (HPV+HNSCC).

Objectives: Following the surgical extirpation of cancer, determination of minimal residual disease (MRD) status is critical. Ideally, MRD would be determined immediately following surgery, allowing plans for monitoring and adjuvant treatment to take place as soon as the first postoperative visit. The objective of the current review is to systematically assess whether early postoperative ctDNA can be used for MRD detection in patients who underwent curative intent oncologic surgery. Study Design: Systematic review. Methods: A systematic review was performed using Ovid Medline, Embase, and Web of Science Core Collection databases. The population included patients with cancer who had a plasma sample drawn within three days after surgery. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed by two authors independently. Results: Ten studies were included in the analysis. Three studies were in lung cancer, two in colorectal cancer, and one in HPV+HNSCC, nasopharyngeal, pancreatic, melanoma, and prostate cancer, respectively. Three studies utilized next generation sequencing (NGS), five utilized digital PCR (dPCR), and two used quantitative PCR (qPCR) for ctDNA detection. Seven out of ten studies demonstrated a statistically significant correlation between ctDNA detection in the first 72 hours postop and a survival outcome. Conclusions: The presence of detectable postoperative ctDNA within three days of surgery portends worse survival outcomes across multiple cancer types, and thus may be a biomarker for MRD without waiting for timepoints further out from surgery. Additional studies are needed to better parse out how early postoperative timepoints compare to later timepoints in terms of positive and negative predictive value for survival.

C90. **Higher Local Recurrence Rate in Young Nonsmokers with Early-Stage Oral Cavity Squamous Cell Carcinoma (OCSCC) Does not Impact Overall Survival**
Vasileios Efthymiou, MD, Boston, MA; Michael P. Wu, MD, Boston, MA; Deborah Goss, MA, Boston, MA; Derrick T. Lin, MD, Boston, MA; Daniel G. Deschler, MD, Boston, MA; Mark A. Varvares, MD, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss the impact of higher local recurrences rates on overall survival in young nonsmokers with Early Stage OCSCC.

Objectives: The incidence of OCSCC has been increasing in young patients without

clear risk factors (e.g., smoking, drinking). Several studies have sought to determine the recurrence rates and the survival outcomes of this group, with inconsistent results. Here, we present our institution's experience regarding survival outcomes in this patient population. Study Design: Retrospective chart review. Methods: We conducted a retrospective chart review, identifying nonsmokers treated with surgery for OCSCC aged below 45 years old from 1999-2021. The patients were identified from the hospital's cancer registry. Demographic, histopathological, and outcome data were extracted and Kaplan-Meier survival curves were calculated for overall survival (OS), and disease free survival (DFS). Results: 42 patients matched the inclusion criteria, 22 females and 20 males, with a mean age at diagnosis of 36.3 years (range 24-45). Median followup time was 64.9 months (range 12.4-285.8 months). Oral tongue was the most common site (95%). At the time of diagnosis, most of the patients (64%) presented with early stage tumors (stage I and II). In total, 13 patients recurred (32%). The 5 year OS and 5 year DFS of the entire group were 93% and 63% respectively. The reported 5 year OS for patients aged 15-39 with oral tongue cancer from National Cancer SEER Database is 70%. Conclusions: In this series, we found that young nonsmokers with OCSCC have decreased DFS but fortunately, their OS outcomes remain relatively high. Additional studies are warranted to better understand the mechanisms behind these findings.

C91.   Assessment of Social Vulnerability Impact on Thyroid Cancer Disparities in the U.S.

David J. Fei-Zhang, BA, Chicago, IL; Daniel C. Chelius, MD, Houston, TX; Urjeet A. Patel, MD, Chicago, IL; Stephanie S. Smith, MD MS, Chicago, IL; Anthony M. Sheyn, MD, Memphis, TN; Jeffrey C. Rastatter, MD MS, Chicago, IL

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the breadth and depth of the social vulnerability index as a comprehensive tool for identifying and quantifying the impact of varied social determinants of head and neck cancer disparities within interrelational, real world demographics across the U.S.; to ascertain methodologies surrounding data abstraction, filtering, and matching between heterogeneous databases; and to explore future investigation opportunities with dynamic, big data utilization in social determinants of head neck pathologies.

Objectives: Utilizing the CDC social vulnerability index (SVI) and SEER patient database, to assess the amalgamated, real world influence of varied SDH and their quantifiable impact on TC disparities across the U.S. Study Design: Retrospective cohort. Methods: 199,340 adult TC patients from 1975-2017 were assessed for significant regression trends in months of followup/surveillance and survival, staging, surgery receipt, and radiation receipt across TC subtypes with increasing overall social vulnerability, as well in 15 SDH variables regarding socioeconomic status (SES), minority language status (ML), household composition (HH), and housing transportation (HT) across all U.S. counties while accounting for sociodemographic regional differences. Results: With increasing overall social vulnerability, decreases in months of followup

were observed with patients with papillary, follicular, medullary, Hurthle cell, and anaplastic TC (p=0.001). Comparing lowest to highest vulnerability cohorts, relative decreases in months surveillance ranged from 55.6% (14.5 to 6.5 months) with anaplastic to 17% (108.6 to 90.2) with Hurthle cell. SES followed by HH & HT contributed to these overall trends. Similar survival decreases occurred across all TC, ranging from 55.9% (9.6 to 4.2) with anaplastic to 28.3% (97 to 69.5) with Hurthle cell, mainly contributed by ML and HT. Increased odds of advanced staging for papillary (OR, 1.07; 95% CI, 1.03-1.12), decreased odds of indicated surgery for papillary (0.94; 0.92-0.96) and medullary (0.91; 0.84-0.99) and radiation for anaplastic (0.88; 0.82-0.93) were observed; ML, HT followed by SES were major contributors. Conclusions: Our results show significant detriments in TC care and prognosis in the U.S. with increasing overall social vulnerability while identifying which SDH quantifiably contribute more to disparities in interrelational, real world-like contexts.

C92.   The Impact of Digital Inequities on Thyroid Cancer Disparities in the US
David J. Fei-Zhang, BA, Chicago, IL; Daniel Chelius, MD, Houston, TX; Anthony M. Sheyn, MD, Memphis, TN; Jeff C. Rastatter, MD MS, Chicago, IL

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the impact of modern day digital resource inequities on thyroid cancer care, utilize methodologies surrounding the development of a comprehensive, self-adapted tool for comprehensively assessing digital resource measures while accounting for nondigital confounders on a national scale, and establish multilevel analyses regarding quantifiable detriments from digital health inequity.

Objectives: To assess modern, technology inequity impact on TC patient care through development of comprehensive index measures in the US. Study Design: Retrospective cohort. Methods: 51,828 adult TC patients from 2013-2017 in the SEER database were assessed for significant regression trends in long term followup period, survival, treatment receipt across TC subtypes with increasing overall digital inequity, as measured by DII. DII was calculated based on 17 census tract level variables derived from the American Community Survey and Federal Communications Commission. Variables were categorized as infrastructure access (i.e., electronic device ownership, type of broadband, internet provider availability, income broadband subscription ratio) or sociodemographic (i.e., education, income, disability status), ranked and then averaged into a composite score. Associations between DII and long term followup period and treatment modalities were assessed via regressions. Results: With increasing overall digital inequity, significant decreases in length of long term followup were observed for follicular (p=0.01) and papillary (p=0.004) subtypes. Income broadband access ratio and internet infrastructure availability followed by electronic device access were the largest contributors to this detriment. Significantly decreased odds of receiving indicated radiation therapy receipt was associated with increasing overall digital inequity in papillary subtypes (OR 0.96; 95% CI 0.95-0.98), with variable contributions from income access ratio,

electronic device access, and internet infrastructure availability. Conclusions: Digital inequities contribute to detrimental trends in TC care in the US, allowing discourse for targeted means of alleviating disparities while contextualizing national, sociode-mographic trends of the impact of online access on informed care.

C93. **Revisiting Thyroidectomy and Parathyroidectomy as Useful Key Indicator Cases for the General Otolaryngologists**
Candace Alexandra Flagg, MD, Fort Sam Houston, TX; Jason Keith Adams, MD, San Antonio, TX; Travis R. Newberry, MD, San Antonio, TX; Jayne R. Stevens, MD, San Antonio, TX; Isaac D. Erbele, MD, San Antonio, TX

Educational Objective: At the conclusion of this presentation, the participants should be able to determine general otolaryngologists' surgical volume after gradua-tion from residency.

Objectives: To determine the rate at which general otolaryngologists perform thyroidectomy/parathyroidectomy as compared to fellowship trained head and neck surgeons. Study Design: Retrospective review. Methods: The Military Health System Data Repository was queried for thyroidectomy and parathyroidectomy current procedure terminology codes for procedures between 2010-2019. The rate of procedures performed at military centers supported by an otolaryngologist were compared to those performed by civilian surgeons in the same catchment area. Rates at academic centers were compared to nonacademic centers. Results: 8,597 thyroidectomies were performed at/near Department of Defense (DoD) hospitals supported by an otolaryngologist (3,594 at/near academic centers and 5,003 at/near nonacademic centers). Military surgeons performed 85% of available thyroid-ectomies at academic centers, versus 69% at nonacademic centers (p value less than 0.0001). 1,826 parathyroidectomies were performed at/near a DoD hospital sup-ported by an otolaryngologist (813 at/near an academic center and 1,013 at/near a nonacademic center). Similar to thyroid surgery rates, military surgeons performed 81% of parathyroidectomies at academic centers, versus 66% at nonacademic centers (p value less than 0.0001). Conclusions: While thyroid and parathyroid surgeries are preferentially performed at academic centers, general otolaryngolo-gists continue to perform these surgeries at high volumes. The study supports their continued role as a vital component of an otolaryngologist's residency education and an expected competency on graduation.

C94. **Association of Sarcopenia with Oncologic Outcomes of Primary Treatment among Patients with Oral Cavity Cancer: A Systematic Review and Meta-analysis**
Jeffrey P. Graves, MS, Rochester, MN; Ghazal S. Daher, MD, Rochester, MN; Megan M.J. Bauman, MS, Rochester, MN; Eric J. Moore, MD, Rochester, MN; Daniel L. Price, MD, Rochester, MN; Kathryn M. Van Abel, MD, Rochester, MN

Educational Objective: At the conclusion of this presentation, the participants

should be able to better understand the impact of pretreatment sarcopenia on the oncologic outcomes of oral cavity cancer patients and the role of sarcopenia as a prognostic indicator in this patient population.

Objectives: Pretreatment sarcopenia has been found to be associated with poor outcomes in many different malignancies, including head and neck cancers. However, the impact sarcopenia has on outcomes for oral cavity cancer (OCC) patients is not well understood. We performed a systematic review of the literature and meta-analysis to determine how radiographic sarcopenia assessment methods and the presence of pretreatment sarcopenia impacted oncologic outcomes in patients with OCC. Study Design: Systematic review and meta-analysis. Methods: Using PRISMA guidelines, we identified and included full text articles that reported original data on adult patients with OCC and sarcopenia undergoing primary treatment. Studies were excluded if they reported duplicated data or data on recurrent disease. Results: Twelve studies met our inclusion criteria, totaling 1007 patients. 359 (36%) of these patients were reported as sarcopenic. The most commonly utilized sarcopenia assessment methods were L3 skeletal muscle index (SMI) (n=5) and C3 SMI to estimate L3 SMI (n=5). The majority of studies established their sarcopenia cutoffs as the lowest quartile SMI in their patient cohorts. Five studies were included in our meta-analysis, totaling 251 sarcopenic and 537 non-sarcopenic patients. Compared to non-sarcopenic patients, sarcopenic patients were found to have significantly poorer overall survival (univariate: HR=2.24, 95% CI: 1.71-2.93, I2=0%; multivariate: HR=1.93, 95% CI: 1.47-2.52, I2=0%) and disease free survival (univariate: HR=2.00, 95% CI: 1.52-2.62, I2=0%; multivariate: HR=1.75, 95% CI: 1.34-2.28, I2=0%). Conclusions: Over one-third of OCC patients may present with sarcopenia. Pretreatment sarcopenia is associated with significantly worse overall and disease free survival.

C95. Cost of Followup Imaging for Patients with p16/HPV Positive Oropharyngeal Cancer after Negative Post-Treatment PET Scan
Lauren Grace Himes, MD, Winston-Salem, NC; J. Dale Browne, MD, Winston-Salem, NC; Samantha Fabian, BS, Winston-Salem, NC

Educational Objective: At the conclusion of this presentation, the participants should be able to conceptualize the financial burden of surveillance scans in patients treated for p16 positive oropharyngeal cancer.

Objectives: To evaluate the efficacy and feasibility of surveillance imaging in patients with an initial negative post-treatment PET. Study Design: Retrospective chart review. Methods: This study evaluated adult patients with HPV positive OPSCC with an initial negative post-treatment PET scan. Primary outcome measures included associated costs, as well as the indications for surveillance scans in recurrence versus nonrecurrence groups. Results: 104 patients with HPV 16 positive OPSCC were included in the analysis. The 3 year survival rate was 93.7%, but almost all non-relapsed patients received additional scans. The total cost burden for non-relapsed patients ranged up to $40,278, and the total expense of imaging was $912,866 for

our cohort. In the non-relapsed group, most scans were done for surveillance (51 CT neck, 33 CT chest, 8 PET) and followup for an imaging finding (14 CT neck, 17 CT chest, 9 PET). Only 2 CT neck and 4 PET scans were performed due to concerning exams or symptomatic patients. Conclusions: Many patients treated for HPV-16 OPSCC with negative post-treatment PET received imaging beyond the NCCN guidelines. Routine imaging led to the detection of benign lesions and exacerbated the cost burden due to subsequent imaging and/or invasive procedures.

C96. Geographic Differences in the Prevalence of HPV Associated Nasopharyngeal Carcinoma
Shun Hirayama, MD, Boston, MA; Brian Y. Zhao, BS, Boston, MA; Deborah Goss, MA, Boston, MA; Daniel L. Faden, MD FACS, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand regional and racial differences in the prevalence of HPV associated nasopharyngeal cancer.

Objectives: Though nasopharyngeal cancer (NPC) has classically been associated with Epstein-Barr virus (EBV), there is a growing body of work recognizing human papillomavirus associated NPC (HPV+NPC). The prevalence and demographics of HPV+NPC is poorly understood. Here, we sought to systematically analyze the prevalence of HPV+NPC overall, and by region of the world. Study Design: Systematic review and meta-analysis. Methods: A systematic review was performed using Ovid Medline, Embase, and Web of Science Core Collection databases. PRISMA guidelines were independently followed by two authors. The population included HPV+NPC patients defined by HPV DNA detection. A meta-analysis was performed to determine prevalence estimates of HPV+NPC overall, and by geographic region and race. Results: Eight studies from North America (4), Japan (1), China (2), and the UK (1) were included in the analysis. The pooled prevalence of HPV among NPC affected patients in the nonendemic regions was 0.27 (95% CI: 0.17-0.30), which was higher than that in endemic regions (0.07 (95% CI: 0-0.09)). Within the same region, the pooled prevalence of HPV differed by race, with 0.38 (95% CI: 0.29-0.44) of NPC affected Caucasians being HPV+, compared to 0.10 (95% CI: 0.01-0.15) in Asians and 0.26 (95% CI: 0.16-0.32) in other races. Conclusions: Here we present a systematic review and meta-analysis of HPV in NPC finding geographic differences in prevalence, with higher prevalence of HPV+NPC in nonendemic areas as well as intraregional differences in prevalence by race, with Caucasians being more likely to have HPV+NPC. These findings will help inform the utility of clinical HPV testing in patients with NPC, which currently is not routinely performed.

C97. **Metabolic Syndrome is Associated with Superficial Surgical Site Infection and Longer Hospital Stay in Elective Parotidectomy**
Samipya Kafle, BS, New Haven, CT; Hemali P. Shah, BS, New Haven, CT; Lauren C. Williams, MD, New Haven, CT; Benjamin L. Judson, MD MBA, New Haven, CT

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss outcomes for patients with metabolic syndrome undergoing elective parotidectomy.

Objectives: Metabolic syndrome (MetS) is associated with worse perioperative outcomes with many types of surgeries. We evaluate whether MetS is associated with worse outcomes in parotidectomy. Study Design: The National Surgical Quality Improvement Program was queried for adult patients undergoing elective parotidectomy by otolaryngologists between 2016-2018. Methods: Patients with hypertension, diabetes, and BMI over 30 were considered to have MetS. Chi squared and t tests were performed to measure the univariate associations between MetS and medical and surgical complications and to compare means for operative time and total length of stay. Results: Of 5,342 patients in our study population, 8.1% (n=435) met criteria for MetS. Patients with MetS were mostly male (52%), white (69.4%), and over the age of 60 (66.9%). MetS was associated with higher ASA classification (p<0.001) and increased frailty (p<0.001). Patients with MetS experienced operative times (167.37 +/- 109.44 min vs 160.35 +/- 106.25, p=0.199) and hospital stays (1.16 +/- 5.46 days vs 1.05 +/- 3.41, p=0.544) that were not different compared to those without MetS. Rates of all pooled complications (5.3% vs 3.7%, p=0.116), surgical complications (4.4% vs 3.1%, p=0.152), and medical complications (1.1% vs 0.8%, p=0.402) were not higher in patients with MetS compared to those without MetS. Only superficial surgical site infection was associated with MetS (2.8% vs 1.4%, p=0.04). No significant differences were seen in rates of shock, deep infection, thromboses, or other complications. Conclusions: Metabolic syndrome is associated with higher rates of superficial surgical site infections, but is not associated with significantly longer operative times, length of stay, reoperation, readmission, or serious complications outcomes in elective parotidectomy.

C98. **Transoral Robotic Surgery for Eagle Syndrome: A Systematic Review**
Darby Keirns, BA, Phoenix, AZ; Ameya Asarkar, MD FACS, Shreveport, LA; Erin Ware, MLIS, Shreveport, LA; Brent Chang, MD FACS FRCSC, Phoenix, AZ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the current literature regarding the use of TORS in the treatment of Eagle syndrome.

Objectives: To evaluate the safety and efficacy of transoral robotic surgery (TORS) for the treatment of Eagle syndrome. Study Design: Systematic review. Methods: A systematic review of the English language literature using multiple databases was

completed for studies describing TORS for Eagle syndrome. Articles were screened by two independent reviewers with a third reviewer for disputes. Studies with less than 3 patients were excluded. Results: Out of 754 articles screened, 4 studies met criteria for inclusion in the final analysis. These consisted of 3 case series and 1 retrospective chart review. In total 19 patients were included in the analysis, 7 males and 12 females, with a mean age of 54.1. Across all studies, there was a 100% surgical success rate. In total, every patient had some level of symptom improvement with 84% of patients having complete symptom improvement and 16% having partial improvement. Reported EBL averaged 12.5 mL. 95% of patients had no surgical complications and no cases were complicated by postoperative bleeding. Operative time across all studies averaged 65 minutes. The average length of stay was 2.1 days. 92% of patients resumed their diet on postoperative day 1, with 8% resuming on day 2. MINORS criteria scoring suggested moderate risk of bias in all studies. Conclusions: This review suggests that TORS is a safe and effective surgical approach in the treatment of Eagle syndrome. This is based on low quality evidence with a small sample size and moderate risk of bias. Larger prospective studies are needed.

C99. **Online Perception and Ratings of Head and Neck Surgeons**

Joshua K. Kim, BS, Durham, NC; Karen Tawk, MD, Orange, CA; Jonathan M. Kim, BA, Orange, CA; Hady Shahbaz, BS, Orange, CA; Tjoson Tjoa, MD, Orange, CA; Mehdi Abouzari, MD PhD, Orange, CA

Educational Objective: At the conclusion of this presentation, participants should understand how topics mentioned in narrative comments on online platforms reflect the overall ratings and patient perception of head and neck surgeons.

Objectives: To understand patient ratings and comments of head and neck surgeons and understand factors correlating to excellent or poor ratings. Study Design: Online database analysis. Methods: Ratings, practice location, and education for American Head and Neck Society (AHNS) members were pulled from Healthgrades, Vitals, RateMDs, and Yelp until October 2021. Narrative feedback was collected when available and categorized based on content. Results: 207 (71.6%) of the 289 AHNS physicians were represented on at least one website. Among the physicians with an online presence, representation was highest on Healthgrades (n=183, 88.4%), followed by Vitals (n=165, 79.7%), RateMDs (n=74, 35.7%), and Yelp (n=14, 6.76 %). The mean rating across all platforms was 4.28 +/- 1.40, with a total of 3086 comments averaging at 16.50 +/- 23.76 per physician. Healthgrades ratings were positively correlated to mentions of clinical outcome or surgical skill (p=0.025) and friendliness (p=0.034) in narrative comments. Conversely, a physician's overall rating was negatively correlated to mentions of cost or insurance difficulties (p=0.018) and wait time (p=0.0026). Location of practice did not influence ratings. Physicians attending top ranked medical schools compared to unranked schools were found to have higher rating averages on Vitals (p=0.002) and Yelp (p=0.004). RateMDs provided higher average ratings for members from the top 50 residency programs

(p=0.015). Conclusions: Online ratings and comments are positively influenced by clinical outcomes and the physician's surgical skills and friendliness, whereas negative ratings and comments were related to waiting time and insurance complaints.

C100. **Pattern and Location of Growth Affects Tumor Immunogenicity of Head and Neck Squamous Cell Carcinoma**
Hari N. Krishnakumar, BS, Boston, MA; Mateo Useche Cortes, MD, Boston, MA; Mark A. Varvares, MD FACS, Boston, MA; Srinivas Vinod Saladi, PhD, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the significance of evaluating and considering tumor characteristics associated with tumor immunogenicity when determining efficacy of immunotherapy for a patient with head and neck squamous cell carcinoma (HN-SCC).

Objectives: Tumor immunogenicity of head and neck squamous cell carcinoma (HNSCC) is evaluated using PD-L1-based assays to determine CPS score and patient eligibility for immunotherapy. Nevertheless, anti-PD-1 immunotherapies for HNSCC only have a 15-20% objective response rate. This study identifies tumor characteristics that influence immunogenicity and response to immunotherapy. Study Design: Retrospective chart review to identify immune program correlation to aggressive disease state. Methods: 152 patients diagnosed with HNSCC were analyzed. Demographic data, including age at diagnosis, gender, and tobacco history were collected. Tumor characteristics, including region of cancer, histological grade, tumor stage, tumor size, depth of invasion, lymphovascular invasion, perineural invasion, worst pattern of invasion (WPOI), and CPS score were collected. Relationships between CPS score and all aforementioned variables were studied. Results: Mean age at diagnosis was 66.04 (+/- 11.90) years with 32.31% of patients being female. CPS scores of oral cavity tumors (CPS=34.75) were significantly higher than those of laryngeal, pharyngeal, and nasal cavity tumors (CPS=13.35) (P < 0.01). Further, CPS scores were significantly higher in tumors with aggressive patterns of invasion (WPOI 4-5) (CPS=51) than in tumors with nonaggressive patterns of invasion (WPOI 1-3) (CPS=27.96) (P < 0.05). CPS score was also lower in well differentiated tumors, cases of tumor recurrence, and among patients with history of tobacco use. Conclusions: Pattern and location of tumor growth is associated with tumor immunogenicity, influencing correlations between CPS score and response to immunotherapy. HNSCC patients' WPOI and tumor location are factors that may need to be evaluated alongside CPS score in determining efficacy of immunotherapy.

C101. **Prevalence of Head and Neck Injuries in the Adult Population in 2017-2021**

Kue Tylor Lee, BS, Augusta, GA; Asim Ahmed, BS, Augusta, GA; Samantha L. Newman, BS, Augusta, GA; Nicholas E. Fuchs, BBA, Evans, GA; Camilo Reyes Gelves, MD, Augusta, GA

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the different etiologies of head and neck injuries.

Objectives: Our study measures such prevalences, characterizing their etiologies to provide insight into injury patterns and activities that necessitate head and neck protection. Study Design: Cross-sectional study. Methods: Data from the National Electronic Injury Surveillance System from 2017 to 2021 was collected. Descriptive statistics and bivariate correlations were performed. Results: A total of 175,201 patients with injuries to the head and neck were identified. The predominant demographic was female (54.6%) and Caucasian (47.9%) with a mean age of 59.67 +/- 22.67. The 71-80 age group (29,251, 16.7%) had the most number of injuries. The greatest increase in injuries was between the age groups 41-50 and 51-60 with a 3.7% increase. The most common diagnoses were internal injury (100,160, 57.2%), laceration (20,263, 11.6%), concussion (13,055, 7.5%), contusion (10,697, 6.1%), and strain (7,484, 4.3%). Of the patients diagnosed, 23.1% were either transferred, admitted, or kept for observation. There is a significant correlation between age and transfer, admission, or observation (p-value <.01) The most common products that caused injury were floors (36,101, 20.6%), stairs (19,192 11.0%), beds (15,014, 8.6%), bathtubs (7,574, 4.3%), and chairs (6,938, 4.0%). Conclusions: The most common products of head and neck injuries were household products. As the greatest increase of injuries was at the age of 51, with a peak at the 71-80 age group, extra countermeasures for safety in the home should be considered in homes with older residents to decrease the number of transfers, admissions, and observations in the hospital.

C102. **Effect of COVID-19 on Perioperative Coagulative Complications after Transoral Robotic Surgery**

Ann M. Martin, BS, Washington, DC; Zachary T. Elliott, BS, Greenville, NC; Jessica H. Maxwell, MD MPH, Washington, DC; Matthew L. Pierce, MD, Washington, DC

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the perioperative risks associated with COVID-19 among those undergoing transoral robotic surgery (TORS).

Objectives: The aim of this study was to investigate the effect of perioperative COVID-19 infection on the risk of coagulative complications among those undergoing transoral robotic surgery (TORS). Study Design: Retrospective database. Methods: A retrospective investigation was conducted using TriNetX, a multi-institutional, national health research network. Among 115 million individuals, subjects who

underwent TORS from January 2020 to September 2022 were identified using ICD and CPT codes. Thirty day coagulative complications including pulmonary embolism, venous thromboembolism, "control oropharyngeal hemorrhage; simple", "control oropharyngeal hemorrhage; with secondary surgical intervention", "control oropharyngeal hemorrhage; complicated, requiring hospitalization", and "control oropharyngeal hemorrhage" were assessed for those diagnosed with COVID-19 infection from seven days before to seven days after surgery. These were compared to COVID-19 negative patients undergoing TORS during the same time period. Results: Perioperative COVID-19 infection was present in 446 patients was absent in 2,273 patients. Patients with perioperative COVID-19 infection were at a statistically significant increased risk for pulmonary embolism (odds ratio [OR]=3.366; confidence interval [CI] =1.517, 7.465) and venous thromboembolism (OR=1.835; CI=1.012, 3.326). Similarly, patients with perioperative COVID-19 infection were more likely to undergo oropharyngeal bleeding requiring simple control (OR=3.366; CI=1.517,7.465), and oropharyngeal bleeding requiring hospitalization for control (OR=3.366; CI=1.517,7.465). Conclusions: This large database study suggests that HNC patients with COVID-19 infection who undergo TORS are at an increased risk for several perioperative coagulative complications, including pulmonary embolism, venous thromboembolism and oropharyngeal bleeding.

C103. **Effect of COVID-19 on Perioperative Complications for Head and Neck Free Flap Reconstruction**
Ann Marie Martin, BS, Washington, DC; Zachary T. Elliott, BS, Greenville, NC; Jessica H. Maxwell, MD MPH, Washington, DC; Matthew L. Pierce, MD, Washington, DC

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the risks of perioperative complications associated with undergoing free flap reconstruction after head and neck cancer surgery.

Objectives: The purpose of this study was to understand the risks of perioperative complications associated with undergoing free flap reconstruction after head and neck cancer (HNC) surgery. Patients undergoing free flap reconstruction after head and neck cancer surgery have potentially high risk for perioperative complications. Recent studies indicate that preoperative COVID-19 infection poses increased risk for postoperative complications for other fields. Here, a large database was employed to assess if perioperative COVID-19 increased the risk of perioperative complications among those undergoing head and neck free flap reconstruction. Study Design: Retrospective database review. Methods: A retrospective investigation was conducted using TriNetX, a multi-institutional, national health research network. Among 115 million individuals, subjects were undergoing HNC surgery from January 2020 to September 2022 were identified using ICD and CPT codes. Thirty day surgical and medical complications were assessed for those diagnosed with COVID-19 infection from seven days before to seven days after surgery. These were compared to COVID-19 negative subjects during the same time period. Cohorts were propensi-

ty score matched by age, sex, race, prior treatments, and 25 common comorbidities. Results: Perioperative COVID-19 was present in n=2,026 and was absent in n=1,067 subjects. Subjects with perioperative COVID-19 were at a statistically significant increased risk (odds ratio) and transfusion requirement OR=1.972 (1.483, 2.623) but a decreased risk for vasopressor use OR=0.601 (0.399, 0.907). There was no statistically significant increased/decreased risk for death, surgical site hematoma, graft complication, graft failure, wound dehiscence, surgical site fistula, surgical site infection, ventilator support, pneumonia, acute renal failure, UTI, altered mental status, MI, CVA, tracheostomy. Conclusions: This large populational study suggests HNC patients with COVID-19 requiring free flap reconstruction are not at an increased risk for most perioperative complications. However, they may be at increased risk for a transfusion requirement. A decreased vasopressor use may be explained by overall hesitancy to use vasopressors in flap patients. This study employed a large, diverse population and is the first study to address this clinical question.

C104. **Outcome Differences between Superficial Parotidectomy with or without Facial Nerve Dissection: TriNetX Analysis**
Michael McWilliams, BA, Richmond, VA; Evan French, MS, Richmond, VA; Evan Reiter, MD, Richmond, VA

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss differences in postoperative course, postoperative complications, and opioid prescription rates between superficial parotidectomy with or without facial nerve dissection.

Objectives: To compare outcomes, including length of postoperative stay and complication rates of patients with benign neoplasms undergoing superficial parotidectomy with or without facial nerve dissection, the latter a surrogate for extracapsular dissection technique. Study Design: Retrospective database review. Methods: Retrospective review of the TriNetX "research" database providing demographic, treatment, lab, and outcome data from over 100 million patients. Inclusion criteria were primary diagnosis of benign salivary neoplasm, primary procedure superficial parotidectomy either with (CPT 42415 (SPwFND)) or without (CPT 42410 (SPwoFND)) facial nerve dissection. We analyzed demographics, length of stay, perioperative complications (facial nerve disorder, hemorrhage, hematoma, seroma, and postop infection), and opioid prescription. TriNetX contained no information on estimated blood loss. Results: 5572 patients underwent SPwFND while 1116 underwent SPwoFND. Fewer patients undergoing SPwoFND required postoperative overnight stay than those undergoing SPwFND (35.9% vs 45.4%, p<0.0001). Fewer patients undergoing SPwoFND received opioid prescriptions than those undergoing SPwFND (35.1% vs 45.3%, p<0001). There were no significant differences between rates of facial nerve disorders, hematoma, seroma, or infection between the groups. Too few patients suffered from postop hemorrhage for TriNetX analysis. Conclusions: SPwoFND nerve dissection led to fewer opioid prescriptions and fewer postoperative overnight stays than SPwFND, with no significant difference in rates of

perioperative complications. This suggests that for appropriately selected patients, SPwoFND may be a comparable treatment option with the benefit of lower re-source utilization and opioid use than SPwFND.

C105. **Impact of Patient Nutritional Status on Pharyngectomy Outcomes**
Dhruv Mendiratta, BS, Newark, NJ; Navya Pendyala, BA, Newark, NJ; Dhiraj Sibala, BS, Newark, NJ; Isabel Herzog, BA, Newark, NJ; Michael S. Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD FACS, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand how nutrition can affect outcomes in pharyngectomy.

Objectives: Nutritional status can affect patient outcomes, healing time, and likeli-hood of surgical success. A common marker used to measure the nutritional status of a patient is serum albumin level. This study uses albumin levels to assess associa-tions between malnutrition and 30 day postoperative outcomes in patients under-going pharyngectomy. Study Design: Retrospective database analysis. Methods: The National Surgical Quality Improvement Program (NSQIP) database was queried for patients who underwent pharyngectomy from 2005-2018. Malnutrition was determined as a preoperative serum albumin level of less than 3.5 g/dl. An ex-tended length of stay (eLOS) was defined as greater than 7 day hospital admission. Univariate chi square analyses were used to assess differences in patient demo-graphics and comorbidities for inclusion in the multivariate binary regression model alongside albumin levels. Results: Of the 630 patients identified, 17.1% were mal-nourished. Malnourished patients had a greater incidence of smoking history and were more likely to have previous pulmonary comorbidities, cardiac comorbidities, disseminated cancer, and chronic steroid use. Malnourished patients had higher rates of death, return to operating room, sepsis/septic shock, minor complications, and eLOS. After adjusting for preoperative variance, malnourished patients were 2.412 times more likely to encounter any postoperative complication, 1.688 times more likely to undergo a major complication, and 1.925 times more likely to have an eLOS. Conclusions: Malnutrition increases likelihood of short term complications even after adjustment for preoperative variance. Surgical delay for preoperative nutritional correction may improve morbidity in malnourished patients undergoing pharyngectomy.

C106. **Comparing the Diagnostic Performance of Liquid Biopsy Approaches for HPV Associated Head and Neck Cancer**
Saskia Naegele, BA, Boston, MA; Daniel Ruiz-Torres, MD, Boston, MA; Yan Zhao, MS, Boston, MA; Deborah Goss, MA, Boston, MA; Daniel L. Faden, MD, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to evaluate the diagnostic performance of qPCR, ddPCR, and NGS liquid biopsy techniques at the time of diagnosis for patients presenting with HPV associated oropharyngeal squamous cell carcinomas.

Objectives: HPV associated head and neck cancers (HPV+HNSCC) release circulating tumor HPV DNA (ctHPVDNA) into the blood. The diagnostic performance of ctHPVDNA detection depends on the approaches utilized and the individual assay metrics. A comparison of these approaches has not been systematically performed to inform expected performance, which in turn impacts clinical interpretation. Study Design: Systematic review and meta-analysis. Methods: A systematic review was performed using Ovid MEDLINE, Embase, and Web of Science Core Collection databases. The population included HPV+HNSCC patients with pretreatment samples analyzed by qPCR, digital droplet PCR (ddPCR), or next generation sequencing (NGS). PRISMA guidelines were independently followed by two authors. A meta-analysis was conducted using the mixed effects model to determine if the sensitivity of NGS based liquid biopsy is superior to qPCR and ddPCR at the time of diagnosis. Results: 21 studies were included in the analysis. We compared a pooled sensitivity of 0.66 (95% CI: 0.58-0.74) from six studies (n=278) using qPCR to 0.89 (95% CI: 0.78-0.94) from 10 studies (n=460) using ddPCR (p=0.005). A pooled sensitivity of 0.91 (95% CI: 0.81-0.96) from five studies (n=74) using NGS was then compared to ddPCR (p=0.36). Five qPCR studies (n=249), six ddPCR studies (n=365), and three NGS studies (n=116) were used to calculate specificity. Pooled specificity was 0.94 (95% CI: 0.59-0.99) for qPCR, 0.97 (95% CI: 0.94-0.99) for ddPCR, and 0.97 (95% CI: 0.90-0.99) for NGS. Conclusions: Both ddPCR and NGS have high sensitivity and specificity for detecting ctHPVDNA. While NGS has a higher pooled sensitivity than ddPCR, a direct comparison of these values was not statistically significant. ddPCR and NGS are both much more sensitive than qPCR. Further investigation into NGS versus ddPCR is warranted given the small sample size in the current literature for NGS.

C107.   Impact of Head and Neck Cancer Awareness Month on Public Interest in the United States between 2012 and 2021

Bryant Obinna Noss, BS, Phoenix, AZ; Dana Naomi Eitan, BS, Phoenix, AZ; Patrick Scheffler, MD, Phoenix, AZ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the use of search engine data to gauge public interest in a topic and have gained insight into the effect of dedicated awareness weeks on public cancer awareness.

Objectives: 1) To investigate if Head and Neck Cancer Awareness Month (HNCAM) is effective in increasing public awareness of head and neck cancer in the U.S. by analyzing search terms from Google Trends data; 2) to compare the impact of HNCAM on head and neck cancer awareness to similar campaigns for breast and prostate cancer. Study Design: Retrospective analysis of national search engine data. Methods: Google Trends relative search volume (RSV) data was obtained from 2012 to 2021 for head and neck, oral, thyroid, and breast cancer. Median RSV's for each cancer were compared between awareness months and remainder of the year. Joinpoint regression was conducted to identify significant time points of changes in trend. Results: Head and neck and oral cancer had significant median RSV increases

of 20% and 13% (both p-values less than 0.05), respectively, whereas thyroid cancer did not. Significant joinpoints were found for breast cancer around its awareness month every year from 2012 to 2021, with the most substantial median increase in RSVs from 26.4 to 67.7 (p-value less than 0.01). Significant joinpoints were found around HNCAM in 2020 and 2021, but not prior. This was not found for thyroid and prostate cancer. Conclusions: HNCAM is associated with a moderate increase in public interest in head and neck cancer, albeit to a smaller effect when compared with breast cancer. Investigating campaigns employed for breast cancer awareness and applying them to head and neck oncology may allow us to improve head and neck cancer awareness in the general population.

C108. Factors Determining Readmission Rates and Incidence of Emergency Surgery in Parathyroidectomies

Ishani Patel, BA, Newark, NJ; Navya Pendyala, BA, Newark, NJ; Dhiraj Sibala, BS, Newark, NJ; Darshan Kalola, BS, Newark, NJ; Michael Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD FACS, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to identify what influences readmission and need for emergency surgery in parathyroidectomy cases.

Objectives: A parathyroidectomy is a surgical procedure that removes one or more of the parathyroid glands to treat a parathyroid disorder. This study aims to identify factors that affect readmission post-parathyroidectomy and comorbidities that could increase a patient's need for an emergency parathyroidectomy. Study Design: Retrospective NSQIP analysis. Methods: Using the National Surgical Quality Improvement Program (NSQIP), a retrospective study was conducted for patients who underwent parathyroidectomy from 2005 to 2018. Odds ratios (OR) were calculated using multivariate analyses to determine what factors significantly increased the chance of readmission or incidence of emergency surgery. Results: A total of 29,457 parathyroidectomy cases were evaluated to determine factors affecting readmission. Of the cases evaluated, patients were mostly female (74.3%), White (62.5%), and between the ages of 61 and 80 (47.4%). Patients with a comorbidity of renal failure (OR 5.694, CI 95% 1.200 - 27.025, p=0.029) and ongoing dialysis (OR 3.187, CI 95% 1.348 - 7.534, p=0.008) have an increased rate of readmission. Additionally, patients with a comorbidity of steroid use have an increased risk of readmission (OR 2.8, CI 95% 1.093 - 7.176, p =0.032). For incidence of emergency surgery, a comorbidity of bleeding disorders causes an increase in risk of emergency parathyroidectomies (OR 3.615, CI 95% 1.062 - 12.304, p = 0.04). Also, chemotherapy is predictive of emergency parathyroidectomies (OR 17.830, CI 95% 2.137 - 148.761, p=0.008). Conclusions: Factors that increase the incidence of readmission post-parathyroidectomy are renal failure, ongoing dialysis, steroid use, and postoperative superficial surgical site infections, and comorbidities that have an increased risk of needing an emergency parathyroidectomy are bleeding disorders and chemotherapy.

C109. **Differences in Postoperative Complication Rates in Outpatient Versus Inpatient Head and Neck Reconstructive Microvascular Surgery**
Navya Pendyala, BA, Newark, NJ; Ishani Patel, BA, Newark, NJ; Anna Mathew, BA, Newark, NJ; Dhiraj Sibala, BS, Newark, NJ; Michael Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD FACS, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to analyze the effect inpatient versus outpatient free flap head and neck microvascular surgery on postoperative complications.

Objectives: Head and neck microvascular reconstructive surgery is mostly done in inpatient settings. Due to this, there is little literature regarding the effects and potential benefits of performing this surgery in an outpatient setting. It is important to recognize the difference in complications or likelihood of complications arising from an inpatient surgery versus an outpatient surgery. Study Design: NSQIP retrospective analysis. Methods: In this study, the 2005-2018 National Quality Surgical Quality Improvement Program (NSQIP) database was used to distinguish head and neck microvascular reconstructive surgery patients. In order to identify significant complications and comorbidities associated with outpatient surgery a univariate analyses was used. Based on this, multivariable analyses were done, controlling for confounding variables, to calculate the odds ratios (OR) of complications significantly associated with outpatient procedures. Results: There were 2,500 head and neck surgery cases used in this study. Of these cases, about 5% were done in an outpatient setting. The patient cohort was mostly White (71.8%), male (63.2%), and 60-80 years old (45.8%). Multivariable analyses indicated that postoperative bleeding (OR 0.233, 95% CI 0.071-0.766, p=0.017), surgical complications (OR 0.254, 95% CI 0.097-0.662, p=0.005) and both medical and surgical complications (OR 0.310, 95% CI 0.135-0.711, p = 0.006). were less likely in patients who went through outpatient microvascular surgeries. Conclusions: Head and neck reconstructive microvascular surgery is a primarily inpatient procedure, but considering the decreased risk of postoperative bleeding, and all surgical and medical complications in outpatient procedures it may be a consideration for surgeons.

C110. **Do Prolonged or Time and Bleeding Disorders Affect Risk of Postoperative Parathyroidectomy Complications?**
Navya Pendyala, BA, Newark, NJ; Ishani Patel, BA, Newark, NJ; Dhiraj Sibala, BS, Newark, NJ; Dhruv Mendiratta, BS, Newark, NJ; Michael Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD FACS, Neark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the effects of prolonged OR time and preoperative bleeding disorders on postoperative complications in patients who underwent parathyroidectomy surgery.

Objectives: Postoperative complications are commonly associated with negative surgical outcomes. Specifically, blood loss has been established to be a significant

concern in both thyroid and parathyroid surgery. This study explores the effects of prolonged operation room (OR) time and bleeding disorders on complications after parathyroidectomy. Study Design: NSQIP retrospective analysis. Methods: This study is a retrospective review of the National Quality Surgical Quality Improvement Program (NSQIP) database querying for patients who underwent parathyroidectomies from 2005 to 2018. The cutoff defining prolonged OR times was the 75th percentile (119 minutes). The odds ratio of the association between prolonged OR time or bleeding disorders on postoperative complications in parathyroidectomy was done using multivariable analyses. Results: A total of 29,457 patient cases were used in this study. Most patients were 60-80 years old (47.4%), female (74.3%), White (62.5%). The multivariate analysis showed that patients who preoperatively had been diagnosed with a bleeding disorder had increased odds of having any surgical complication (OR 13.842, 95% CI 1.206-158.834, p = 0.035). Patients who had prolonged OR times showed an increased likelihood of having a postoperative UTI complication (OR 2.583, 95% CI 1.145-5.829, p=0.022), any medical complication (OR 1.973, 95% CI 1.316-2.958, p = 0.001), and any postoperative complication both surgical and medical (OR 1.784, 95% CI 1.222-2.605, p=0.003). Conclusions: Ultimately, both bleeding disorders and prolonged OR times are significantly associated with medical and/or surgical postoperative complications in parathyroidectomy patients.

C111. **Impact of Radiation Therapy Center Volume on Survival after Transoral Robotic Surgery**

Ramez Philips, MD, Philadelphia, PA; Sruti Tekumalla, BA, Philadelphia, PA; Aarti Agarwal, MD, Philadelphia, PA; Adam Luginbuhl, MD, Philadelphia, PA; David Cognetti, MD, Philadelphia, PA; Joseph Curry, MD, Philadelphia, PA

Educational Objective: At the conclusion of this presentation the participant should be able to understand the effect of radiation therapy center volume on survival in patients receiving transoral robotic surgery and adjuvant radiation for oropharyngeal squamous cell carcinoma. Participants should be able to identify factors associated with worse disease free and overall survival in these patients.

Objectives: To examine the effect of radiation therapy center volume on overall and disease free survival in patients requiring adjuvant radiation therapy after undergoing transoral robotic surgery for squamous cell carcinoma at a high surgical volume center. Study Design: Retrospective chart review. Methods: A retrospective study was conducted on patients with oropharyngeal squamous cell carcinoma treated surgically at a tertiary institution from 2010 to 2020 who received adjuvant radiation therapy. Dependent variables of interest were overall and disease free survival. Radiation therapy center volume was categorized as a high volume center (HVC) versus low volume center (LVC). Multivariable Cox proportional regression analysis was used to identify variables associated with survival. Results: 377 patients met inclusion criteria. One hundred sixty-three (43.2%) of patients received adjuvant radiation therapy at HVC. Patients receiving adjuvant radiation therapy at a HVC had

similar 3 year overall (96.2% vs 95.8%, p = 0.41) and disease free (91.2% vs 92.1%, p = -.36) survival to patients receiving adjuvant radiation at an LVC. Multivariable analysis identified advanced age, T classification, and positive margins as significantly associated with overall survival. Multivariable analysis identified T/N classification and positive margins as significant predictors of disease free survival. Extranodular extension did not correlation with overall or disease free survival (p = 0.51). Conclusions: After transoral robotic surgery, volume of adjuvant radiation therapy center was not significantly associated with overall or disease free survival. Significant associations with survival included age, TN classification, and positive margins. Other pathologic adverse features such as extranodular extension were not association with survival.

C112.   How Often Is Cancer Present in Oral Cavity Re-Resections after Initial Positive Margins?

Kavita Prasad, BA, Nashville, TN; Rahul Sharma, MD, Nashville, TN; Robert Sinard, MD, Nashville, TN; Kyle Mannion, MD, Nashville, TN; James Lewis, MD, Nashville, TN; Michael Topf, MD, Nashville, TN

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss the frequency of carcinoma in oral cavity re-resections and oncologic outcomes of reresection after a positive margin.

Objectives: There are barriers to relocating the anatomic site of an initial positive margin in oral cavity cancer resections. We aim to evaluate the rate at which carcinoma is present in the re-resection sample and its impact on oncologic outcomes. Study Design: Retrospective chart review. Methods: A single institution retrospective chart review of patients that underwent surgery for oral cavity cancer was performed. Final pathology reports were reviewed to identify patients with initial positive margins who underwent re-resection during the same operation. Initial positive margin was defined as severe dysplasia or carcinoma. Kaplan-Meier with log rank analysis was used to examine overall (OS), disease free (DFS), and local recurrence free survival (LRFS). Results: Among 1,773 total patients, 99 patients (5.6%) had initial positive margins and underwent re-resection. The median followup was 1.7 years (IQR 0.77 - 5.6). Additional carcinoma or severe dysplasia was found in 30% of re-resections and 32% of patients had final positive margins. Two year DFS was significant among patients with positive final margins compared to those with negative (50% vs. 64%, p=0.043) and trended towards poorer 2 year OS (p=0.43) and LRFS (p=0.21) among patients with positive final margins. When stratified on whether re-resection contained additional carcinoma/severe dysplasia, LRFS (p=0.39), DF (p=0.79), and OS (p=0.66). Conclusions: Only 30% of re-resections in oral cavity oncologic surgery contain additional carcinoma or severe dysplasia. This suggests that surgeons may have difficulty relocating the anatomic site of initial positive margin. Novel intraoperative techniques for margin site relocation may be required to accurately guide re-resection as final margin status remains an important prognosticator in oral cavity cancer.

C113. **Intraoperative 3D Scanning and Mapping for Transoral Robotic Surgery Oncologic Specimens**
Kavita Prasad, BA, Nashville, TN; Kayvon Sharif, BA, Nashville, TN; Alexis Miller, BA, Nashville, TN; Kyle Mannion, MD, Nashville, TN; James Lewis, MD, Nashville, TN; Michael Topf, MD, Nashville, TN

Educational Objective: At the conclusion of this presentation, the participants should be able to discuss the feasibility of 3D scanning and specimen mapping for transoral robotic surgery oncologic specimens.

Objectives: Transoral robotic surgery (TORS) has become increasingly utilized for the treatment of oropharyngeal cancer. Margin status is a key prognostic factor for TORS patients. The current standard of care for communication of margins intraoperatively between surgeon and pathologist is a telephone call. Without visual aid, it may be difficult to relocate the site of a positive margin. We aim to highlight the feasibility of incorporating 3D scanning and mapping of TORS resection specimens for improved surgical pathology communication and relocation of margins. Study Design: Case series. Methods: Patients who underwent TORS for oropharyngeal cancer were identified. After surgical en bloc resection of the tumor specimen, the resected specimen was 3D scanned using a commercially available 3D scanner. The 3D images were uploaded into computer assisted design (CAD) software and sampled margins were annotated concurrently with the standard of care frozen section analysis. Results: Four patients with p16 positive squamous cell carcinoma of the tonsil who underwent TORS lateral oropharyngectomy and subsequent 3D scanning and mapping were included. Mean image acquisition time was 7 minutes 24 seconds. Margin status was communicated to the surgeon in the operating room with the aid of 3D specimen map via teleconferencing. One case had a focally positive deep margin that was communicated to the surgeon intraoperatively using the anatomic guidance of the 3D specimen map. Conclusions: 3D scanning and specimen mapping can be utilized for TORS resection specimens to improve communication between surgeons and pathologists.

C114. **Effect of Opioid Usage during Immunotherapy on the Progression Free Survival of Patients with Squamous Cell Carcinoma of the Head and Neck**
Uma Ramesh, BA, Houston, TX; Skyler Clark, BA, Houston, TX; Andrew Sikora, MD, Houston, TX; Juan Cata, MD, Houston, TX

Educational Objective: At the conclusion of this presentation, the participants should be able to identify how opioid use can modify the presumed efficacy of immunotherapy on progression free survival in patients with recurrent or metastatic head and neck cancer.

Objectives: Understand the prevalence of opioid use in head and neck squamous cell carcinoma (HNSCC) patients. Examine treatment efficacy in HNSCC patients receiving concurrent immunotherapy and opioids. Study Design: Retrospective review. Methods: A retrospective analysis was conducted of all adult patients diag-

nosed with HNSCC on immunotherapy between 2001 to 2021 at a single institution. Primary outcome was progression free survival (PFS), defined by first date of immunotherapy to first radiographic evidence of disease progression. Opioid and immunotherapy duration were defined by first and last prescription and treatment dates, respectively. Treatment overlap was identified if immunotherapy and opioid therapy were concurrent or within 14 days of each other. Cancer related and demographic variables were included in analysis. Chi square test was used to evaluate association between treatment overlap and progression. Wilcoxon rank sum test was used to evaluate association between treatment overlap and PFS. Kaplan-Meier analysis was used for time to event analysis for PFS. Results: In total, 287 patients were included. Most had treatment overlap (n=235) and advanced disease (n=194), with no difference in HPV status. Pembrolizumab was the most common immunotherapy agent (n=215). Univariate analysis demonstrated no significant effect of cancer related or demographic variables on treatment overlap. The Kaplan-Meier curve demonstrated no significant difference in PFS between patient groups. Conclusions: Concurrent opioid use with immunotherapy was not found to impact PFS in HNSCC patients, which is contrary to most current literature. Thus, this area requires further study to determine both best treatment and quality of life outcomes in patients with HNSCC.

C115.   Impact of Post-Surgical COVID-19 Infection on Delays to Initiation of Adjuvant Radiation in Head and Neck Squamous Cell Carcinoma
Noah Shaikh, MD, Morgantown, WV; Tanya Fancy, MD, Morgantown, WV; Mustafa Bulbul, MD, Morgantown, WV

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the impact of post-surgical COVID-19 infection on delays to initiation of adjuvant radiation beyond the recommended 6 week window. We will additionally discuss the impacts of delayed adjuvant radiation on oncologic prognosis.

Objectives: To understand how post-surgical COVID-19 infection may delay adjuvant radiation for head and neck squamous cell carcinoma (SCC). Study Design: Retrospective database study. Methods: The 2020 National Cancer Database (NCDB) was queried for patients undergoing surgery and adjuvant radiation for head and neck SCC. Inclusion criteria contained patients with invasive SCC with non-metastatic disease who received non-palliative treatment by definitive surgery with adjuvant radiation, underwent treatment at reporting facility, and received preadmission or in hospital COVID-19 testing. The primary outcome of interest was a delay in time from definitive surgery to adjuvant radiation beyond 42 days. The primary covariate of interest was a postsurgical COVID-19 infection. A positive postsurgical COVID-19 infection was considered if it occurred after definitive surgery and before adjuvant radiation. Other covariates included patient age, sex, race, academic facility designation, facility geographic location, patient insurance coverage, patient high school educational attainment, patient income level, urban/rural designation, distance to treatment facility, Charlson Deyo score, head and neck primary site, and American

Joint Commission on Cancer (AJCC) 8th Edition tumor clinical stage. Multivariable logistic regression was performed both before and after propensity scoring with respect to postsurgical COVID-19 infection. A p value of less than or equal to 0.05 was considered significant. Results: Starting with 41,949 identified with head and neck SCC, after exclusions were applied and missing values were removed, 107 patients remained, from which 32 patients (29.91%) were infected with COVID-19 after definitive surgery and prior to receipt of adjuvant radiation. Covariate propensity score matching was performed based on infection with COVID-19, leaving 64 patients with balanced covariates. Multivariable logistic regression demonstrated a postsurgical COVID-19 infection increased the likelihood of delay in adjuvant radiation with an odds ratio (OR) of 1.50 (95% CI 0.71-2.10) [p=0.034] before propensity score matching and 8.84 (95% CI 1.22-134.75) [p= 0.06] after propensity score matching. Conclusions: Infection with the COVID-19 virus after definitive surgery for head and neck SCC may increase the likelihood of delayed adjuvant radiation beyond the recommended treatment window of 42 days. Interventions to assist patients in receiving early treatment may be of interest.

C116. **Development of Hypothyroidism following Hemithyroidectomy: A Population Based Study**

Galen Shearn-Nance, BS, Cleveland, OH; Stephen Politano, MD, Cleveland, OH; Claudia Cabrera Aviles, MD MS, Cleveland, OH; Richard Grant Muller, MD, Cleveland, OH; Akina Tamaki, MD, Cleveland, OH; Jason E. Thuener, MD, Cleveland, OH

Educational Objective: The objective is to define the incidence of hypothyroidism following hemithyroidectomy.

Objectives: Hypothyroidism is a known possibility after hemithyroidectomy, with a highly variable incidence in the literature ranging from 8% to 60%. Our aim was to evaluate the incidence of hypothyroidism after hemithyroidectomy using TriNetX, a global federated research network. Study Design: Retrospective population based study. Methods: A total of 44 healthcare organizations were queried from TriNetX. We included all patients within the last 15 years that were >/= 18 years of age and had CPT codes for hemithyroidectomy. Patients were excluded if they had a total or complete thyroidectomy at any time, a history of thyroid cancer, were preoperatively on levothyroxine, diagnosed with hypothyroidism, or had a TSH >/= 4 m[IU]/L. We assessed the incidence of hypothyroidism postoperatively based on diagnosis of hypothyroidism by ICD code, a TSH >/= 4 m[IU]/L, or taking levothyroxine. Results: 6,990 patients met the inclusion criteria. The majority of the cohort was female (68%) and white (67%). The mean age at surgery for this population was 53.4 +/- 15.9. During the 15 years of data, we found the incidence of hypothyroidism following hemithyroidectomy to be 45.8%. The median time to develop the disease was 40.8 months. A subgroup analysis of those with Hashimoto's revealed that 185/358 (51.6%) developed hypothyroidism after surgery. Conclusions: This population based study found the incidence of postoperative hypothyroidism following hemithyroidectomy to be almost half of all patients who underwent surgery. This

study provides insight into the risk of hypothyroidism to aid postoperative patient counseling and management.

C117. **Association between ASA Classification and Postoperative Outcomes of Tonsillectomy with or without Adenoidectomy**
Dhiraj R. Sibala, BS, Newark, NJ; Sree C. Chinta, BS, Newark, NJ; Navya Pendyala, BS, Newark, NJ; Ishani Patel, BA, Newark, NJ; Michael S. Hegazin, DO, Newark, NJ; Jean A. Eloy, MD FACS, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the utility of the American Society of Anesthesiologists (ASA) physical status classification as a predictor of outcomes in tonsillectomy with and without adenoidectomy.

Objectives: In this study, we seek to determine the utility of the American Society of Anesthesiologists (ASA) physical status classification as a predictor of outcomes in tonsillectomy with and without adenoidectomy. Study Design: Retrospective database review. Methods: The National Surgical Quality Improvement Program (NSQIP) database was queried for patients who underwent open tonsillectomy with and without adenoidectomy between 2005 and 2018. Univariate and multivariable analyses were performed to determine statistical associations between ASA classes and postoperative outcomes in tonsillectomy with and without adenoidectomy. Results: Of the 44,652 identified patients, 38,511 (86.2%) were ASA class I/II and 6,141 (13.8%) were ASA class III/IV. Patients of ASA class I/II were younger than those of III/IV and significantly more were female. Univariate analysis also revealed a lower incidence of diabetes, smoking, alcohol use, COPD, hypertension, disseminated cancer, steroid use, bleeding disorders, systemic sepsis, and other comorbidities in patients of ASA class I/II (p less than 0.001). Complication rates, including surgical site infection, wound disruption, bleeding, and sepsis, were also significantly lower as well as readmissions and unplanned readmissions. On multivariable analysis, patients of ASA class III/IV had greater odds of developing a medical complication (p = 0.045, OR = 7.679, CI:1.043 - 56.525) and a medical infection (p = 0.025, OR = 9.446, CI:1.318 - 67.720). Conclusions: Although higher ASA class is not a predictor of overall and surgical complications, it is a predictor of medical complications and medical infections. ASA class should be evaluated and considered prior to adult tonsillectomy.

C118. **Association between Modified Frailty Index (mFI-5) and Postoperative Outcomes of Endoscopic Sinus Surgery**
Dhiraj R. Sibala, BS, Newark, NJ; Sree C. Chinta, BS, Newark, NJ; Navya Pendyala, BS, Newark, NJ; Isabel Herzog, BS, Newark, NJ; Michael S. Hegazin, DO, Newark, NJ; Jean A. Eloy, MD FACS FRCS, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the association between mFI-5 score and endoscopic sinus surgery (ESS) complications.

Objectives: The modified frailty index (mFI-5) is a frailty index consisting of five comorbidities that can be used to stratify patients into categories based on risk of developing postoperative complications. This study specifically investigates the association between mFI-5 score and endoscopic sinus surgery (ESS) complications. Study Design: Retrospective database review. Methods: The National Surgical Quality Improvement Program (NSQIP) database was queried for patients who underwent ESS between 2005 and 2018. mFI-5 score was calculated by assigning one point for each of the following comorbidities: CHF, diabetes, COPD or pneumonia, hypertension, and partial or total dependent status. Univariate and multivariate analyses were conducted to determine associations between mFI-5 score and postoperative complications. Results: 1,627 patients undergoing ESS with calculable mFI-5 were queried. The mean mFI-5 score was 0.50 (SD = 0.73). Univariate analysis showed that ESS was associated with increased age, gender, race, higher ASA class, as well as obesity, smoking, dyspnea, bleeding disorder, systemic sepsis, any medical complication (including pulmonary, renal, cardiovascular, and hematologic), any complication, and mortality. Multivariate analysis found increased odds between a higher mFI-5 score and medical infection (p = 0.035, OR = 3.307, CI:1.091 - 10.025), any medical complication (p less than 0.001, OR = 13.809, CI:3.25 - 58.675), as well as prolonged postoperative stay (p = 0.032, OR = 3.184, CI:1.103 - 9.192). Conclusions: This study suggests an association between mFI-5 score and medical complications, medical infections, and prolonged postoperative stay in ESS. mFI-5 score should be evaluated prior to ESS.

C119.   Association between Risk Analysis Index (RAI) and Postoperative Outcomes of Parotidectomy

Dhiraj R. Sibala, BS, Newark, NJ; Sree C. Chinta, BS, Newark, NJ; Dhruv Mendiratta, BS, Newark, NJ; Ishani Patel, BA, Newark, NJ; Michael S. Hegazin, DO, Newark, NJ; Jean A. Eloy, MD FACS, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the association between RAI score and postoperative complications of parotidectomies.

Objectives: The risk analysis index (RAI) is a tool for measuring frailty based on frailty associated variables in the National Surgical Quality Improvement Program (NSQIP) database. This study specifically investigates the association between RAI score and postoperative complications of parotidectomies. Study Design: Retrospective database review. Methods: The NSQIP database was queried for patients who underwent parotidectomies between 2005 and 2018. Patients without data for variables in the RAI calculation were excluded. Univariate and multivariable analyses were conducted to determine associations between RAI score and postoperative complications. Results: 641 patients undergoing parotidectomies were stratified into the following groups by RAI score: 397 (61.9%) with RAI 10 or less, 113 (17.6%) with RAI 11 to 20, 98 (15.3%) with RAI 21 to 30, and 33 (5.1%) with RAI of 31 or higher. Univariate analysis showed that RAI was associated with male gender,

higher ASA class, obesity, diabetes, smoking, dyspnea, and other comorbidities as well as any complication, readmissions, unplanned readmissions, reoperations, and mortality. Multivariable analysis found associations between RAI and any complication (p = 0.022, OR: 4.554, CI = 1.248 - 16.614), any surgical complication (p = 0.040, OR = 3.877, CI = 1.061 - 14.162), any medical complication (p = 0.005, OR: 3.371, CI = 1.448 - 7.844), and ventilation/intubation (p less than 0.001, OR: 7.617, CI = 2.619 - 22.152). Conclusions: This study suggests an association between RAI score and any complications, including surgical and medical, in parotidectomies. RAI score should be evaluated prior to parotidectomy to evaluate for risk of postoperative complications.

C120.   Association between Work Relative Value Units (wRVU) and Postoperative Outcomes of Tracheostomy
Dhiraj R. Sibala, BS, Newark, NJ; Sree C. Chinta, BS, Newark, NJ; Ishani Patel, BA, Newark, NJ; Dhruv Mendiratta, BS, Newark, NJ; Michael S. Hegazin, DO, Newark, NJ; Jean A. Eloy, MD FACS FRCS, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the association between wRVU, operative time, and postoperative complications in tracheostomy.

Objectives: The work relative value unit (wRVU) is a factor used to determine physician compensation and is commonly cited alongside operative time as a surrogate for surgical complexity. This study investigates the association between wRVU, operative time, and postoperative complications in tracheostomy. Study Design: Retrospective database review. Methods: The National Surgical Quality Improvement Program (NSQIP) database was queried for patients who underwent tracheostomies between 2005 and 2018. Linear regression was used to determine correlation between wRVU and operative time. Univariate and multivariable analyses were conducted to determine associations between wRVU and postoperative complications. Results: 4,469 patients undergoing tracheostomies were queried, and they were stratified into wRVU based cohorts: 0.00-16.32 (n=1086), 16.33-23.95 (n=1208), 23.96-36.90 (n=917), and 36.91+ (n=1069). Linear regression revealed a poor correlation between wRVU and operative time (p less than 0.001, R2 = 0.097; p less than 0.001, R2 = 0.096). Increasing wRVU was found to be associated with lower incidence of obesity, diabetes, smoking, dyspnea, hypertension, systemic sepsis, wound infection, and other comorbidities upon univariate analysis (p less than 0.01). Multivariable analysis revealed an association between wRVU and any medical complication (p = 0.001, OR = 8.439, CI:2.320-30.700), ventilation/intubation (p = 0.008, OR = 5.860, CI: 1.585-21.668), and excessive bleeding (p = 0.039, OR = 3.972, CI: 1.075-14.673). Conclusions: This study suggests a correlation with a poor association between wRVU and operative time for tracheostomies and an association with a few postoperative complications. wRVU is a poor proxy for complexity and compensation in tracheostomies.

C121. **Head and Neck Cancer Inequities in the LGBTQ+ Population: A Scoping Review**

Dillon Strepay, BS BA, Chapel Hill, NC; Sarah M. Russel, MD, Chapel Hill, NC; Catherine J. Lumley, MD, Chapel Hill, NC

Educational Objective: At the conclusion of this presentation, participants should be able to understand current knowledge of head and neck cancer inequities that lesbian, gay, bisexual, transgender, and queer patients may face.

Objectives: Lesbian, gay, bisexual, queer (LGBTQ+) individuals face higher rates of numerous cancers and disproportionate head and neck cancer (HNC) risk due to various historical, social, and economic factors. However, most research into HNC inequities examines disparities as they relate to race/ethnicity, sex, or socioeconomic status with few studies focusing on LGBTQ+ patients. We conducted a scoping review to explore and map the current body of literature on HNC inequities in the LGBTQ+ population. Study Design: Scoping review. Methods: Terms related to LGBTQ+ people and HNC were searched in four databases. Studies that 1) discuss prevalence and/or outcomes from HNC; and 2) provide data specifically about LGBTQ+ people or any subset thereof were included. Studies were excluded if they failed to meet both inclusion criteria or if they were commentaries or reviews. Data extraction focused on prevalence and outcomes of HNC in the LGBTQ+ population. Results: 285 studies underwent title and abstract screening. Of these, 264 were deemed irrelevant and 21 underwent full text review. Ten studies were ultimately included. These suggested an increased prevalence of oral and oropharyngeal cancer in LGBTQ+ patients compared to heterosexual, cisgender counterparts, but some of these disparities disappeared when controlling for substance use or HIV prevalence. Data on outcomes from HNC in this population was notably lacking. No included studies examined inequities in laryngeal cancer. Conclusions: This scoping review identified possible inequities in prevalence of oral and oropharyngeal cancer among LGBTQ+ patients. However, data on outcomes and other HNC subsites are lacking, highlighting areas for future research.

C122. **The Inconsistent Assessment of Quality of Life in Patients Treated for Head and Neck Cancer with Anti-EGFR Inhibitors: A Systematic Scoping Review**

Sarah R. Sutton, BS, Charleston, SC; April N. Taniguchi, BS, Charleston, SC; Shaun A. Nguyen, MD, Charleston, SC; Alexandra E. Kejner, MD, Charleston, SC; Jason G. Newman, MD, Charleston, SC

Educational Objective: At the conclusion of this presentation, the participants should understand the considerable variations of quality of life reporting in clinical trials assessing anti-EGFR inhibitors.

Objectives: In head and neck cancer (HNC) patients, there is a correlation between quality of life (QoL) scores and positive treatment outcomes. Our aim was to review how QoL is reported in clinical trials that assess anti-EGFR inhibitors. Study Design:

Systematic scoping review. Methods: PubMed, Scopus, and CINAHL were queried to identify studies that assess anti-EGFR inhibitors and their impact on patient QoL. Two reviewers performed study screening, data extraction, and risk of bias assessment. Results: The authors identified 1108 articles for screening and 22 articles were included, evaluating 5961 patients. European Organization for the Research and Treatment of Cancer Quality of Life Questionnaires, EORTC QLQ-30 and EORTC QLQ-H&N-35, were reported in seven studies and in two studies with European Quality of Life Five Dimension (EQ-5D). University of Washington QOL (UW-QOL) was implemented in two studies versus Functional Assessment of Cancer Therapy - Head & Neck (FACT-H&N) in six. For twelve articles, QoL was reported as average scores for specific variables across 5 surveys. Supplemental data was available in 10 studies. Critical appraisal of studies indicates high risk of bias due to the inclusion of unblinded trials. Conclusions: There is no standard method for reporting QoL data in clinical trials for HNC patients undergoing treatment with anti-EGFR inhibitors. QoL benchmarks are selected and reported differently between studies, using a wide range of validated surveys. These metrics are difficult to assess on a larger scale, hindering meaningful analysis. Future trials should standardize their method for assessing quality of life data to increase patient centered care and refine treatment choices to optimize survival.

C123.   **Targeting PI3K/Akt/mTOR Pathway in Head and Neck Squamous Cell Carcinoma to Improve Anti-Tumor Immune Response**
Mateo Useche, MD, Boston, MA; Jong Chul Park, MD, Boston, MA; Manik Vohra, PhD, Boston, MA; Srinivas Vinod Saladi, PhD, Boston, MA

Educational Objective: At the conclusion of this presentation, the participants should be able to consider the role of PIK3CA in head and neck squamous cell carcinoma pathogenesis and its implications on tumor immune evasion.

Objectives: PI3K/AKT/mTOR pathway mutations and amplification are frequent genomic features of head and neck squamous cell carcinoma. Activating mutations, particularly in phosphatidylinositol-4, 5-bisphosphate 3-kinase catalytic subunit alpha (PIK3CA), inhibit anti-tumor immunity and thereby enable tumor immune evasion. This study identifies in vitro changes in the immune profile by selective inhibition and pan-inhibition of PIK3CA with alpelisib and pictilisib, respectively. Study Design: The present study follows in silico and experimental in vitro study design. Methods: The correlation of PIK3CA mutation, amplification, and expression to immune markers to define patient response to immunotherapy was assessed utilizing the expression data in TCGA of head and neck cancer patients. Drug sensitivity assay was performed in different HNSCC cell lines, with and without PIK3CA mutations and amplifications, utilizing alpelisib and pictilisib, which are FDA approved. Gene expression was analyzed following drug treatment. Results: PIK3CA gene expression was inversely correlated with immune gene expression in HNSCC patients. PIK3CA expression also correlated to decreased T cell infiltration in HNSCC, specifically in HPV-ive patients. The dose response analysis in HNSCC cell lines suggested that

mutations and amplification rendered them to be more sensitive to alpelisib and pictilisib. Further, the use of alpelisib and pictilisib resulted in an increase in antigen processing machinery genes, specifically in PIK3CA mutant HNSCC cells compared to the PIK3CA wild type cells. Conclusions: Inhibiting PIK3CA may improve the response to immune checkpoint inhibitors in a subset of HNSCC patients.

C124. **A Population Based Analysis of Primary Squamous Cell Carcinoma of the Thyroid Gland Using the SEER 2000-2019 Database**
Vikram Vasan, BA, New York, NY; Calista Dominy, BS, New York, NY; Scott Roof, MD, New York, NY; Maaike van Gerwen, MD PhD, New York, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to better understand the epidemiology of this rare and aggressive disease.

Objectives: Primary squamous cell carcinoma in thyroid (PSCCTh) is believed to be highly aggressive. PSCCTh accounts for less than 1% of all primary thyroid carcinomas. Knowledge of overall epidemiology and recent management of PSCCTh remains limited due its small incidence. This study aimed to better characterize PSCCTh survival and prognosis. Study Design: This study retrospectively analyzed the Surveillance, Epidemiology, and End Results 2000-2019 registry. Methods: Patients diagnosed with PSCCTh were extracted and relevant clinical information to characterize these patients was collected. Demographics, such as age, sex, race, income level, geographical location, and outcomes, such as cancer specific survival (CSS), overall survival (OS), distant metastases (DM), and lymph node metastases (LNM) were collected. Results: 187 patients with PSCCTh were identified. 100 (53.5%) were female, 127 (67.9%) were White, 3 (1.6%) were in the lowest income bracket, and 21 (11.2%) lived in a non-metropolitan environment. 100 patients (53.5%) experienced a DM, and 26 (13.9%) of patients experienced 4 or more LNMs. Surgery was performed for 66 patients (35.3%), 158 (84.5%) of these patients had all cause mortality, and 122 (65.2%) patients experienced cancer specific death. Conclusions: This study provides further insight into the rare thyroid malignancy, PSCCTh. Little over a third of the patients received surgical treatment and CSS and OS are low with high DM rate, further enunciating the poor prognosis of the disease. Further identifying a standard treatment paradigm for these patients is essential to help improve outcomes of this aggressive disease.

C125. **Racial, Socioeconomic Status, and Geographic Disparities in Survival of Patients with Salivary Gland Mucoepidermoid Carcinoma**
Vikram Vasan, BA, New York, NY; Calista Dominy, BS, New York, NY; Scott Roof, MD, New York, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to understand some factors that impact survival for patients with salivary gland mucoepidermoid carcinoma.

Objectives: Mucoepidermoid carcinoma (MEC) is a histotype of major salivary gland carcinoma, comprising around up to 40% of major salivary gland carcinomas. This study aims to evaluate the impact of race, socioeconomic status, and geographical location on overall survival (OS) and cancer specific survival (CSS) in patients with salivary gland MEC. Study Design: A retrospective analysis of the Surveillance, Epidemiology, and End Results 2000-2019 database. Methods: Patients with major salivary MEC were identified and stratified based on race, socioeconomic status (SES) by income level, and geographical location by urban/rural classification. Comparative univariate analyses to OS and CSS were performed. Multivariate regression model of OS and CSS with factors with $p<0.05$ was then conducted while adjusting for age, sex, treatment modality, and tumor stage. Results: 4,597 patients with MEC were analyzed. Race ($p<0.001$) and geographical location ($p=0.005$) differed significantly on univariate analysis for both OS and CSS. Multivariate analysis revealed that White patients were at elevated risk for cancer specific mortality (OR=1.67; $p<0.001$) and all cause mortality (OR=1.41; $p<0.001$) compared to non-White patients. Patients living in an urban area populated with over 1 million people were protected from all cause mortality (OR=0.70; $p=0.005$). Conclusions: In major salivary gland MEC patients, White race was predictive of all cause mortality and cancer specific mortality while patients living in urban, populated locations were protected from all cause mortality. These findings may help direct clinical care when assessing prognosis of patients with salivary gland MEC.

C126.   Reconstructive Trends and Complications following Laryngectomy: Incidence and Predictors in Regional and Free Flap Reconstruction
Sudeepti Vedula, MD, Newark, NJ; David P. Strum, MD, New York, NY; Arman Saeedi, BS MPH, New York, NY; Ghayoour Mir, DO, New York, NY; Adam S. Jacobson, MD, New York, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to describe national trends in laryngectomy reconstruction and understand associations of complications and postoperative outcomes with flap type.

Objectives: To evaluate national trends in laryngectomy reconstruction and understand complications and postoperative outcomes based on flap type. Study Design: Retrospective cohort study. Methods: The National Surgical Quality Improvement Program (NSQIP) queried for patients who underwent total laryngectomy with reconstruction between 2005-2018. CPT codes were used to identify primary and secondary procedures and classify reconstruction types into local/pedicled flaps and microvascular free flaps (MVFF). Univariate and multivariate analyses were performed to compare postoperative outcomes. Results: 916 patients were identified. Of these, 558 (60.9%) underwent reconstruction with local/pedicled flap reconstruction and 358 (39.1%) underwent MVFF reconstruction. There was a significant increase in transfusion requirement and operative times in patients undergoing MVFF reconstruction (OR=1.858, $P<0.001$; OR=4.640, $P<0.001$). There were no significant differences in length of stay ($P=0.548$), readmission rates ($P=0.057$) and

reoperation rates (P=0.068) between the two groups. Conclusions: Total laryngectomy is a common treatment for advanced tumors of the larynx and hypopharynx. Although primary closure is an option in many cases, reconstruction with pedicled flaps or MVFF is increasingly being performed for closure. The literature highlights better functional outcomes with regards to swallowing and decreased fistula formation in MVFF. Our study shows that while pedicled flaps may be a safer alternative to MVFF for patients with comorbidities who would not tolerate prolonged time or excessive blood loss, MVFF reconstruction represents a viable alternative for many patients. Given the superior functional benefit emphasized in the literature and similar length of stay and readmission rates noted in our study, MVFF should be considered as the preferred reconstruction technique.

C127. **Characterization of Cerebral Radiation Necrosis following Treatment of Sinonasal Malignancies**

Eric Longhua Wu, MD, Washington, DC; Atur Patel, MD, Washington, DC; Mary C. McGunigal, MD, Worcester, MA; Stephanie Y. Johng, MD, Tampa, FL; Ann K. Jay, MD, Washington, DC; Timothy R. DeKlotz, MD, Washington, DC

Educational Objective: At the conclusion of this presentation, the participants should be able to identify incidence and potential risk factors for cerebral radiation necrosis (CRN) following treatment of sinonasal malignancies.

Objectives: Our study aims to determine incidence and potential risk factors for cerebral radiation necrosis (CRN) following treatment of sinonasal malignancies. Study Design: Retrospective chart review. Methods: One hundred thirty-two patients diagnosed with sinonasal malignancies over an eighteen year period were identified at two institutions. Forty-six patients meeting inclusion criteria and treated with radiation therapy were included for analysis. Demographic and clinical pathologic characteristics were collected and reviewed. Post-treatment magnetic resonance imaging (MRI) at least one year following treatment was reviewed by neuroradiologists to determine presence or absence of CRN. Categorial data was presented using frequencies and percentages and compared using Fischer's exact tests. Continuous variables, specifically radiation dosage and the radiation biologically effective dose (BED), were presented using medians and interquartile ranges and compared using Kruskal-Wallis H-tests. Results: CRN was identified on MRI in 8 of 46 patients (17.4%) following radiation treatment. Patients with a history of reirradiation were more likely to develop CRN (50% vs 10.5%, p less than 0.05). The BEDs of radiation were also higher in CRN patients compared to non-CRN patients, but this difference was not significant (p greater than 0.05). Demographics, comorbidities, pathology, primary tumor subsite, chemotherapy use, and stage of disease demonstrated no significant increase in risk of CRN. Conclusions: Reirradiation was a significant risk factor associated with CRN. Higher average total prescribed and BEDs of radiation were seen in the CRN groups, but these differences were not statistically significant. Gender, comorbidities, tumor subsite, tumor location, and treatment type were not significantly different between groups.

C128. **Trends in Bethesda Score Reporting Thyroid Cytology (BSRTC) and Thyroid Malignancy Rates - A 9 Year Referral Center Experience**
Elchanan Zloczower, MD MHA, Rehovot, Israel; Oded Cohen, MD, Beer-Sheva, Israel

Educational Objective: To describe 'real life' experience of fine needle aspiration cytology of thyroid nodules and malignancy rates.

Objectives: To examine trends in Bethesda System for Reporting Thyroid Cytology (BSRTC) categories distribution and malignancy rates over the years. Study Design: Retrospective cohort. Methods: All patients who underwent a thyroid fine needle aspiration (FNA) in our institution between 2010-2018. We excluded children (<18 years), patients with nondiagnostic cytology (BSRTC I), and cases of noninvasive follicular carcinoma with papillary features (NIFTP). Data included patients' demographics, sonographic features, FNAc results (BSRTC), and final pathology in patients who underwent thyroid surgery. Results: 2,830 nodules were included with a mean size of 25.1 mm. 2,373 (83.9%) nodules were classified as BSRTC II. Overall, BSRTC trends did not change significantly throughout the study years. However, the rates of BSRTC II significantly changed between 2011, 2015, and 2018 (76.4% compared to 88.7% and 87.6%, accordingly. P < 0.005) and in BSRTC III in the same years (13.0% compared to 4.8% and 5.5%, accordingly. P < 0.005). Importantly, the rates of highly suspicious for malignancy and malignant cytologies (BSRTC V and VI accordingly) did not significantly change during this time. The overall malignancy rate was 50.7% (including microcarcinoma), with 20.9% / 53% / 51% / 89.8% / 97.9% malignancy rates in BSRTC II/ III/ IV/ V/ VI, respectively. Conclusions: While BSRTC II and III may be interchangeable, the overall trends remained stable, especially in suspicious and malignant BSRTC categories.

Laryngology/Bronchoesophagology
C129. **Sex Specific Differences in 30 Day Outcomes for Morbidly Obese Patients Undergoing Tracheostomy**
Afash Haleem, BA, Newark, NJ; Dhiraj Sibala, BA, Newark, NJ; Sree R. Chinta, BA, Newark, NJ; Michael Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the association between gender and complications in tracheostomy based on obesity status.

Objectives: Morbid obesity has been shown to have a mixed effect on postoperative outcomes in various surgical procedures. This study specifically investigates the association between gender and complications in tracheostomy based on obesity status. Study Design: Morbid obesity has been shown to have a mixed effect on postoperative outcomes in various surgical procedures. This study specifically investigates the association between gender and complications in tracheostomy based on obesity status. Methods: The National Surgical Quality Improvement Program

(NSQIP) database was queried for patients who underwent tracheostomy between 2005 and 2018. Univariate and multivariable analyses were conducted to determine associations between gender and postoperative complications separated by obesity status. Results: 4,280 patients undergoing tracheostomy were queried with a morbidly obese population of 582 patients (minimum body mass index of 35), of which 280 (48.1%) were female and 302 (51.9%) were male. When looking at the non-obese population, smoking, alcohol use, pneumonia, stroke, and unplanned readmissions were significantly more common among males with superficial surgical site infection being more common in females. Similarly, among the obese population, males were more likely to be of White or Asian race, have lower American Society of Anesthesiologists classification, and be smokers, with females having a significant association with ventilator and steroid use, cumulative medical and pulmonary complications, transfusions, and cumulative morbidity. Upon multivariable analysis, only cumulative morbidity was found to be significant in the nonobese population with lower odds of morbidity in males (OR: 0.835, p = 0.036, CI: 0.706 - 0.988). Conclusions: Although obesity status was shown to have a significant effect on the association between gender and postoperative complications in other procedures, no significant association was found specifically in tracheostomies.

C130. **Microbial Composition of The Laryngotracheal Region: A Systematic Review**
Zara Sragi, BS, New York, NY; Vikram Vasan, BA, New York, NY; Benjamin Laitman, MD PhD, New York, NY; Mark Courey, MD, New York, NY; Diana Kirke, MBBS MPhil, New York, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to understand that the laryngotracheal region houses a unique microbial community that is impacted significantly by benign and malignant conditions. Studying these changes can influence how we treat certain diseases.

Objectives: There have been comparatively few comprehensive microbiome evaluations of the upper airway, namely the larynx and trachea. Understanding this microbial community can elucidate how dysbiosis impacts disease and changes management. Study Design: A systematic review of literature was performed to evaluate microbial compositions of the laryngotracheal region in healthy and diseased patients. Methods: EMBASE, Medline, and Cochrane Central were used alongside a variation of "microbiome", "trachea", and "larynx" search terms. Adults and studies using PCR and ribosomal sequencing methods met inclusion criteria. Case reports, reviews, animal, and pediatric studies were excluded. Results: 1383 studies were found, of those 17 met inclusion; 12 involved the larynx and six involved the trachea. A healthy larynx is composed of a relatively even distribution of streptococcus, cloacibacterium, and Prevotella. Vocal polyps, Reinke's edema, and laryngotracheal stenosis scars were associated with decreased microbial diversity. Compared to iatrogenic stenosis, idiopathic stenosis was associated with a significant decrease in commensal Prevotella bacteria. Laryngeal squamous cell carci-

noma was associated with increased diversity and abundance of fusobacterium. In intubated patients, the microbial composition of the trachea was more diverse in diabetics and those that later developed pneumonia. Prevotella and streptococcus increased survival in pneumonia, and streptococcus and haemophilus were associated with successful extubation. The microbiome was variable depending on the type of malignant tracheal tumors, with squamous cell carcinoma having a prevalence of Prevotella. Conclusions: The laryngotracheal region is impacted differently by benign and malignant conditions. Future clinical trials can assess how modifications to the microbiome impact disease, resulting in potential novel therapeutic options.

C131. **Differential Gene Expression of Cells from Idiopathic Subglottic Stenosis Scar after Estrogen Stimulation**

Edward Ryan Roxas Talatala, BS, Nashville, TN; Marisol Ramirez-Solano, MS, Nashville, TN; Quanhu Sheng, PhD, Nashville, TN; Alexander Tell Hillel, MD, Baltimore, MD; Alexander Gelbard, MD, Nashville, TN

Educational Objective: At the conclusion of this presentation, the participants should be able to identify the impact of estrogen on ex vivo cultures of airway scar from idiopathic subglottic stenosis patients.

Objectives: Idiopathic subglottic stenosis (iSGS) is an unexplained progressive fibrosis of the upper airway, affecting women nearly exclusively. As a result, female hormones (estrogen and progesterone) have been proposed to participate in disease pathogenesis. This study aimed to describe the molecular changes in iSGS airway scar resulting from 17-estradiol (E2) exposure. Study Design: Ex vivo molecular study. Methods: Single cell suspensions from 3 biologically distinct iSGS airway scars were left untreated or stimulated with E2 (10^12M) for 6 hours, then underwent single cell RNA sequencing (scRNAseq). Results were quantified and compared across cell types, then visualized using Uniform Manifold Approximation and Projection (UMAP). Differentially expressed genes were analyzed via Gene Set Enrichment Analysis (GSEA). Results: scRNAseq demonstrated antigen presenting cells (macrophages, dendritic cells, and B cells) had the largest number of differentially expressed genes following E2 exposure. Other cell types, including epithelial cell subsets, fibroblasts, and CD4 Tregs, also showed significantly differentially expressed genes after E2; although the effects were more modest. These genes were then analyzed via GSEA, which revealed multiple cell types that showed a variety of metabolic and survival gene programs in response to E2 exposure. Notably, macrophages showed increased oxidative phosphorylation and decreased reactive oxygen species response. These responses are anti-inflammatory mechanisms that are characteristic of M2 macrophages, which promote cell proliferation and collagen deposition. Additionally, epithelial progenitor cells had increased epithelial mesenchymal transition, implicating fibrosis and scar formation. Conclusions: scRNAseq data and GSEA identified unique cell types and gene programs that may promote or sustain iSGS disease pathogenesis in response to estrogen.

Otology/Neurotology

C132. **Active Transcutaneous Bone Conduction Hearing Implants in Patients with Hearing Thresholds Exceeding Manufacturer Recommendations**
David Ahmadian, BS, Tucson, AZ; Nicholas A. Dewyer, MD, Tucson, AZ

Educational Objective: At the conclusion of this presentation, the participants should understand that patients with bone conduction thresholds that exceed manufacturer recommendations may still benefit from an active transcutaneous bone conduction implant.

Objectives: Bone conduction implantation (BCI) is often used for patients with complex otologic issues. This study describes the outcomes of a cohort of patients with bone conduction thresholds (BCTs) that exceeded manufacturers' recommendations who underwent BCI with active transcutaneous devices. Study Design: Retrospective cohort analysis. Methods: A retrospective chart review was performed for patients who underwent BCI with placement of an active transcutaneous implant (Med-El BoneBridge or Cochlear Osia) by a single surgeon at a tertiary academic center from 9/1/19 - 6/24/22. Patients with at least one preoperative BCT that exceeded manufacturer recommendations (less than or equal to 45 dB for Bone-Bridge and less than or equal to 55 dB for Osia) were included in the study. Results: 7 patients met inclusion criteria, 1 was lost to followup. Preoperative bone pure tone averages were 38 dB on the implanted side and 27 dB on the non-implanted side. Patients had various pathologies leading to their hearing situations, and all were counseled about options for hearing rehabilitation and elected to undergo BCI with the understanding that their BCTs exceeded manufacturer recommendations. Postoperatively, 5 patients reported improved hearing while using the device and 1 patient had improvement in sentence scores but subjective benefit was not documented. One patient reported hearing abnormal mechanical sounds with device use which resolved after implant replacement. Conclusions: Active transcutaneous BCI may provide benefit for patients with BCTs outside manufacturer recommendations.

C133. **Statistical Shape Model of the Eustachian Tube for Understanding and Managing Eustachian Tube Dysfunction**
Ameen Amanian, MD MSE, Vancouver, BC Canada; Yuliang Xiao, BSE, Baltimore, MD; Zhiwei Gong, BSE, Baltimore, MD; Manish Sahu, PhD, Baltimore, MD; Brian Westerberg, MD, Vancouver, BC Canada; Francis Creighton, MD, Baltimore, MD

Educational Objective: At the conclusion of this presentation, the participants should be able to 1) highlight the current limited understanding of the variations present with the eustachian tube; and 2) demonstrate the utility of statistical shape models in quantifying variations present within the eustachian tube to explain interpatient differences based on age, sex, and pathology.

Objectives: Statistical shape models (SSMs) are a method for mathematically defin-

ing three dimensional objects and their variation. SSMs have become increasingly useful in defining radiographic anatomy over the past decade. There is currently a lack of knowledge pertaining to the interpatient anatomical variation within the eustachian tube (ET). We aimed to develop an automated pipeline to develop the first radiographic SSMs of the ET. Study Design: Retrospective cohort study. Methods: A total of sixty ETs automatically segmented via a deep learning platform from computed tomography scans of adult patients were included. Each segmentation was separated into the nasopharyngeal (i.e., soft tissue), middle (i.e., cartilaginous), and ear (i.e., bony) ends. The first three principal components (PC) of each SSM were analyzed to describe shape variation. Results: Analysis of the nasopharyngeal end showed notable variation in size and orientation with respect to its articulation point with the middle ET portion. For the nasal end, the main variation occurred along its 1st PC corresponding to its long length axis with an average distance of 6.06-10.40mm. Analysis of the bony ET end showed most of its variability along its length and width. However, the bony ET demonstrated the least variation in shape (0.12-0.34mm). Conclusions: This study presents the first radiographic SSMs of the ET and shows that most of the ET variation occurs in the nasopharyngeal end. Due to pipeline's automated nature, it can be translated into large data analysis by providing insight into the ET anatomy and used to investigate shape differences amongst patients with and without nasopharyngeal pathology.

C134. **HearWHO application in Geriatric Primary Care Setting: A Pilot Study**
Amanda Joy Bastien, MD, Los Angeles, CA; Mia Miller, MD, Los Angeles, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to 1) describe the burden of hearing loss in the older population includes the psychosocial burden of hearing loss, increased healthcare costs, and decreased productivity; 2) discuss the great interest among elderly in hearing exams; and 3) a hearing application may be used to decrease the barriers to identification of hearing impairment and decrease the burden of untreated hearing loss.

Objectives: Hearing loss affects 20% of the population and is even more prevalent in patients over 65 years old (33%). The burden of hearing loss in the older population includes the psychosocial burden of hearing loss, increased healthcare costs, and decreased productivity. Early detection can help mitigate these effects but there are significant barriers to access. The World Health Organization developed a hearWHO application in 2019, a mobile, number based screening exam, but this application has not been validated in primary outpatient clinics. The app includes digits in noise testing and uses an antiphasic digit stimuli. The aim of this pilot study was to examine the accuracy and feasibility of using the hearWHO app in an elderly population and validate its use in a community clinic. Study Design: This is a cross-sectional study study at a community outpatient geriatric clinic. Methods: 32 patients participated in this ongoing study. All new patients establishing care at a community outpatient geriatric clinic were given the option to take a hearing test as part of their visit. The patient took the test while waiting for their doctor. Results:

Of these, 56.3% had hearing loss and were referred to ENT or audiology. In total, only 18.8% declined the hearing test. Of these, 6.3% could not complete the test due to cognitive decline. 25% patients with hearing impairment on hearWHO had a mini-cog score <3, indicating higher likelihood of clinically important cognitive impairment. Using a chi square test, there was a statistically significant relationship (p=.02) between the hearing loss and lower mini-cognitive scores. Conclusions: This pilot study indicates that the majority of patients seen in a geriatric clinic were interested in a hearing evaluation. HearWho and similar applications may be used to decrease the barriers to identification of hearing impairment and decrease the burden of untreated hearing loss.

C135. Characteristics that Identify Patients with Malignant Otitis Externa Requiring Inpatient Management
Woo Yul Byun, BSE, Columbus, OH; Lisa Zhang, MD, Columbus, OH; Joseph F. Bonanno, BS, Columbus, OH; Stephanie S. Wentzel, BS, Columbus, OH; Yin Ren, MD PhD, Columbus, OH

Educational Objective: At the conclusion of this presentation, the participants should be able to determine objective patient characteristics that identify patients with malignant otitis externa (MOE) who are at risk of developing severe disease requiring inpatient admission.

Objectives: To elucidate objective presenting characteristics of patients who, on average, require inpatient care for MOE. Study Design: Retrospective chart review. Methods: The charts of adult patients who presented to a tertiary academic referral center or affiliated clinics and were diagnosed with MOE between 2010-2022 were reviewed. The demographics, past medical history, history of present illness, inpatient or outpatient courses, and followup visits of 23 patients (mean age 68 [SD = 13], 78% male) were recorded. Results: 18 were admitted and 5 were treated as outpatients. Facial nerve dysfunction (House-Brackmann grades II-VI) was significantly more common in admitted patients (56% vs. 0%, P = 0.046). Additionally, the average duration of symptoms before presentation was significantly lower in admitted patients (38 days [SD = 42] vs. 165 days [SD = 219], P = 0.032). In contrast, there were no significant differences in the presence of ear discharge (P = 0.621), renal disease (P = 0.272), insulin use (P = 0.127), and whether the patient presented to the emergency department instead of outpatient clinic (P = 0.155). Conclusions: Patients who required inpatient admission for MOE had higher incidence of facial nerve dysfunction and shorter duration of symptoms compared to those who did not require admission. In addition, there is a trend that insulin use and presenting first to the emergency department may be additional factors that need to be considered. These preliminary findings may serve as guidance to primary care physicians and general ENT practitioners to identify the population most at risk for developing severe MOE and improve patient triage. Analysis of additional patients may better depict significant patient characteristics.

C136. **The Association between Neurological Disorders and Vestibular Schwannoma Diagnosis**
Victor A. de Cos, BS, San Diego, CA; Olivia A. La Monte, BS, San Diego, CA; Timothy J. Sears, BS, San Diego, CA; Omid Moshtaghi, MD, San Diego, CA; Peter Dixon, MD, San Diego, CA; Rick Friedman, MD PhD, San Diego, CA

Educational Objective: At the conclusion of this presentation, the participants should have an increased awareness about the complex and multifaceted relationship between neurological disorders and vestibular schwannomas.

Objectives: This study aims to determine whether history of any otolaryngological symptoms or neurological disorders (ND) exhibit an association with vestibular schwannomas (VS). Study Design: Epidemiology cross-sectional study. Methods: Extensive surveys were administered to members of the Acoustic Neuroma Association in addition to control participants with the goal of creating a de-identified database. Survey components included demographic information and VS history and assessed patients' potential history of otolaryngologic symptoms (including hearing loss, vertigo, and sinusitis) and any of several ND, which we defined as mental, mood, anxiety, and other disorders. Stratification was performed according to VS diagnosis. Pearson's chi squared tests were performed in order to assess deviation from a normal distribution as well as to produce F statistics and p values. Results: To date, 299 (78%) of the 384 patients surveyed had a VS diagnosis, and these patients were 80% female and 91% Caucasian with a mean age of 59 years. Patients diagnosed with VS were significantly more likely to have a history of hearing loss (32% vs. 9%, p = 5.9e-05), vertigo (12% vs. 1%, p = 0.05e-01) and, interestingly, any of the ND (17% vs. 5%, p = 0.06e-01) as compared to those who had no VS diagnosis. Conclusions: Our survey showed a potential association between VS and ND. The complexities of a VS diagnosis in the context of ND is poorly understood, and further research is required to elucidate specific aspects of this possible association.

C137. **Multidisciplinary Diagnostic Framework to Rule Out Vestibulopathy in Patients with Central Meditated Nystagmus: A Case Report**
Gene Fu, DPT, New York, NY; Jennifer Kelly, DPT, New York, NY; Maura Cosetti, MD, New York, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to identify appropriate tests and measures to rule out vestibulopathy in patients with central mediated nystagmus.

Objectives: To present a multidisciplinary evaluative framework to determine appropriate vestibular testing to perform on patients with central mediated nystagmus. Study Design: Case report. Methods: We will discuss the clinical decision making and framework for a 66 y.o. female with ocular cutaneous albinism and pendular nystagmus. The traditional vestibular test battery recommended by the Barany Society (VNG, rotary chair, VEMP, VHIT) was not appropriate due to the presence of central mediated nystagmus. A multidisciplinary framework involving

an MD, audiologist, and physical therapist was developed to modify the testing battery in order to rule out vestibulopathy in this clinical case. Our revised test battery included cVEMP, clinical bedside vestibular exam, subjective measures (DHI, ABC) and objective measures of balance (mCTSIB, timed gait). Results: The cVEMP results were nonsignificant (under 47% asymmetry threshold). The patient scored 52 points (moderate handicap) on the DHI and 51% on the ABC (moderate level of functioning, prediction of future falls). The patient was able to complete all 4 conditions for 30 secs. in the mCTSIB and timed gait speed was 1.29 m/s, which is above average in an ambulatory setting. Conclusions: Our revised testing battery ruled out vestibulopathy in this patient and may serve as a framework for future individuals with similar oculomotor pathologies in which traditional vestibular testing would not be appropriate.

C138. Characterization of Social Media Content on Acoustic Neuroma

Aparna Govindan, MD, New York, NY; Sudeepti Vedula, BS, Newark, NJ; Sunder Gidumal, MD, New York, NY; George Wanna, MD, New York, NY; Enrique Perez, MD, New York, NY; Maura Cosetti, MD, New York, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to better understand patient counseling needs when managing acoustic neuroma.

Objectives: To investigate Twitter for attitudes towards and experiences with acoustic neuroma (AN) diagnosis and management and assess if these perspectives are addressed by the medical community. Study Design: Qualitative study. Methods: The social media platform Twitter was searched for posts (tweets) published between January 1, 2021, and December 31, 2021, using search criterion of "acoustic neuroma", and "vestibular schwannoma". Inductive reasoning with modified ground theory approach (M-GTA) was employed to categorize tweets into thematic domains, which were further analyzed with descriptive statistics. Results: A total of 1056 tweets were identified, of which 789 (74.7%) met inclusion criteria. Tweets were categorized by author type including academic departments, medical specialists, scientific journals, or patients/caregivers. These categories were further analyzed by eight thematic categories with the following representative text: surgery related concerns/experience (43 tweets, 5.4%), patient symptoms/attitudes (117 tweets, 14.8%), research/advancements (180 tweets, 22.8%), prognosis and treatment concerns (35 tweets, 4.4%), support/awareness (128 tweets, 16.2%), patient education (89 tweets, 11.3%), medical education (188 tweets, 23.6%), and misconceptions (9 tweets, 1.1%). Most patients expressed content related to abundant community support and optimistic patient testimonials (245 tweets, 31.1%), while most of the content from the medical community was related to research or medical education (368 tweets, 46.6%). Conclusions: Social media provides a platform for patients to present perspectives they may not otherwise express to clinicians. With complex diagnosis like AN, it is important to fill these knowledge gaps to better aid in counseling and shared decision making.

C139. **Prevalence of Migraine and its Impact on Quality of Life in Patients with Vestibular Schwannoma (VS)**
Olivia LaMonte, BSc, La Jolla, CA; Joshua Lee, BSc, Valhalla, NY; Victor de Cos, BSc, San Diego, CA; Timothy J. Sears, BSc, La Jolla, CA; Omid Moshtaghi, MD, La Jolla, CA; Rick Friedman, MD PhD, La Jolla, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to better understand the relationship between migraine and vestibular schwannoma in the context of quality of life. Additional data regarding quality of life pre and postoperatively will educate healthcare professionals about what changes to expect in their patients with migraine and VS.

Objectives: To examine the prevalence of migraine and its impact on quality of life in patients with vestibular schwannoma (VS). Study Design: Single institution cross-sectional case series. Prospective, patient reported survey of individuals with diagnosis of VS. Methods: Quality of life among 7 categories was measured by Penn Acoustic Neuroma Quality of Life (PANQOL) score and self-reported physician diagnosed migraine history was collected from patients with a diagnosis of VS. Longitudinal data was collected with surveys administered preoperatively and 1 year following surgery. Results: In total, 122 patients, 70 females (60%) with an average age of 52 (+/- 16) years old completed the survey. 28 (23%) had a diagnosis of migraine and 95 did not. The migraine group had significantly higher QOL across anxiety (65 vs 56, p<0.04) and overall (55 vs 43, p<0.05). No difference in the hearing, balance, energy, pain, face and general domain scores were detected. In total, 22 patients had both pre and postoperative QOL metrics collected, 8 (36%) reporting a migraine history. Preliminary results show the change in QOL as diminished anxiety domain scores following surgery in the migraine group; however, this is nonsignificant (migraine: preop 65 vs postop 50, p<0.2; non-migraine: preop 46 vs postop 44 p<0.4). Further ongoing data collection will be crucial for elucidating trending results. Conclusions: The presence of migraine can impact QOL in patients with a concurrent diagnosis of VS. However, further data collection is ongoing to better understand this relationship.

C140. **Isolated Fracture of the Malleus: An Overlooked Cause of Conductive Hearing Loss? A Case Series and Systematic Review**
Benjamin D. Lovin, MD, Houston, TX; Daniel Gorelik, MD, Houston, TX (Presenter); Joshua Cody Page, MD, Houston, TX; Eric N. Appelbaum, MD, Atlanta, GA; Kenny F. Lin, MD, Houston, TX; Jeffrey T. Vrabec, MD, Houston, TX

Educational Objective: At the conclusion of this presentation, the participants should be able to explain the common historical, physical exam, audiologic, and radiologic presentations for an isolated malleus fracture, and discuss the expected outcomes when managed expectantly and surgically. The review suggests that isolated malleus fracture may be an underdiagnosed etiology of conductive hearing loss, and consideration of it in patients with high frequency conductive hearing loss

is crucial.

Objectives: To report the largest case series of isolated malleus fractures and perform a systematic review to characterize the disease's presentation and natural history and provide suggestions for management. Study Design: Retrospective and systematic review. Methods: Retrospective review of 12 patients with isolated malleus fractures over a 20 month period across multiple centers was conducted. Clinical history, physical exam, pre and postoperative audiograms, and imaging were extracted. A systematic review of the PubMed, Embase, and Cochrane Library was performed. Results: Including the cases herein, total of 58 isolated malleus fractures were identified, 81% of which reported in the last 20 years. Mean time to presentation was 34.4 months. Most common mechanism of injury was external auditory canal (EAC) manipulation, and the most common exam finding was a hypermobile tympanic membrane. Physical exam and computed tomography were normal at initial presentation in 15% and 24% of cases, respectively. The majority (95%) of fractures involved the manubrium. Conductive hearing loss (CHL) was ubiquitous, and the air bone gap (ABG) at initial presentation was 16-26 dB and greater at higher frequencies. Thirty-five cases underwent operative repair. Of these patients, the improvement in ABG was 5-15 dB and greater at higher frequencies. Conclusions: Isolated malleus fracture is a rare cause of CHL. Publication trends and normalcy at initial evaluation suggest these fractures are likely underdiagnosed. Abrupt finger removal from the EAC with otalgia and hearing loss is nearly pathognomonic. CHL with ABG greater at higher frequencies is seen. Observation is unlikely to produce resolution while surgery demonstrates reliable improvement in ABG.

C141.   Exploring Treatment Recommendations and Response in Patients with Meniere's Disease

Brevin J. Miller, BA, St. Louis, MO; Dorina Kallogjeri, MD MPH, St. Louis, MO; Jay F. Piccirillo, MD FACS, St. Louis, MO

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the variability that exists in the response to conservative therapies in patients with Meniere's disease.

Objectives: This study describes the treatments recommended to patients with Meniere's disease (MD) at initial presentation and during followup at a single tertiary medical center. Rates of response to conservative treatments throughout the followup period are also assessed. Study Design: Retrospective case series. Methods: Patients newly diagnosed with MD in 2016-2017 without prior treatment were included. Recommended treatments were recorded at presentation and at each followup visit. Patients were determined to be responsive to conservative therapies if their disease was managed with nonpharmacologic interventions (e.g., dietary modification) or oral medications (e.g., diuretics, steroids) and unresponsive if they received intratympanic therapies or underwent surgical interventions. Results: From the 73 identified patients newly diagnosed with MD, followup data was avail-

able for 58. Of the 73 newly diagnosed patients, 59 (80.8%) were initially recommended nonpharmacologic therapies, oral diuretics, or a combination of both. Of the 58 patients with followup data, 45 patients (77.6%) had a change in treatment over time. A total of 38 of 58 (65.5%) patients were responsive to conservative therapies. Of those that were unresponsive (20, 34.5%) most received intratympanic steroids while one (1.7%) received intratympanic gentamicin and underwent surgery. When individual treatment recommendations are displayed graphically, high rates of variability are observed over time. Conclusions: In MD, an individual patient's likelihood of responding to therapy is highly variable and likely changes over time. Further work to identify predictors of treatment response is needed to optimize disease control and improve quality of life in patients with MD.

C142. **Effect of Surgical Wound Disruption on Postoperative Complications in Tympanoplasty Cases**
Ishani Patel, BA, Newark, NJ; Navya Pendyala, BA, Newark, NJ; Anna Mathew, BA, Newark, NJ; Dhiraj Sibala, BS, Newark, NJ; Michael Hegazin, DO, Newark, NJ; Jean Anderson Eloy, MD FACS, Newark, NJ

Educational Objective: At the conclusion of this presentation, the participants should be able to identify what effect on postoperative complications for tympanoplasties wound disruption has.

Objectives: Tympanoplasty recovery time is approximately 3 months during which surgical wound care is very important. Our study evaluates the effect of surgical wound disruption on the incidence of other postoperative complications. Study Design: A retrospective NSQIP analysis. Methods: A retrospective study of tympanoplasty cases from 2005 to 2018 was conducted using the National Surgical Quality Improvement Program (NSQIP) database. A demographic analysis was done to identify subgroups of tympanoplasty cases, and a multivariate analysis was done to determine the odds ratio (OR) to assess the association of wound disruption with postoperative complications and readmission. Results: There were a total of 932 tympanoplasties evaluated. Of the evaluated cases, a majority were female (54.9%), White (56.4%), and between the ages of 41 and 61 (38.3%). The surgical wounds right after surgery were defined as clean (29.1%), clean/contaminated (61.2%), contaminated (3.3%), and dirty/infected (6.4%). Multivariate analysis shows that patients with wound disruption post-tympanoplasty, defined as opening of the surgical wound, have an increased risk of superficial surgical site infections (OR 86.128, CI 95% 5.347 - 1387.358, p = 0.002). However, wound disruption does not cause an increased risk of other surgical postoperative complications including deep surgical site infections, organ space surgical site infections, sepsis, need for readmission, or need for reoperation Conclusions: The postoperative complication of wound disruption increases the likelihood of developing a superficial surgical site infection but does not increase the risk of developing deep surgical site infections, organ space surgical site infections, sepsis, need for readmission, or need for reoperation.

C143. **Acute Facial Paresis from Histoplasmosis Capsulatum: Case Presentation and Comprehensive Review of Environmental Dimorphic Fungal Infections of the Temporal Bone**
Jacob L. Seicshnaydre, BS, New Orleans, LA; Victoria Burke, MD, New Orleans, LA; Anne K. Maxwell, MD, New Orleans, LA

Educational Objective: At the conclusion of this presentation, the participants should know that otologic H. capsulatum infection is possible in the setting of a tympanic membrane perforation if the ear is exposed to the organism. They should also understand otologic manifestations of the endemic mycoses and be able to discuss further workup (for extension/dissemination and immunocompromise) and treatment options.

Objectives: To report the first known case of localized histoplasmosis of the temporal bone, and review published otologic manifestations of endemic mycoses. Study Design: Case presentation and comprehensive literature review. Methods: A 52 year old male with a history of chronic tympanic membrane perforation presented with acute hearing loss, dizziness, otorrhea and facial paresis (House-Brackmann grade V/VI). On exam there was a large fibrous granuloma obstructing the remnant tympanic membrane, and a severe to profound mixed hearing loss. The clinical scenario was suspicious for cholesteatoma with acute facial paresis. Steroids were given and radical mastoidectomy was performed. Due to the firm nature of the fibrous granuloma, tissue was sent intraoperatively for frozen section and permanent pathology. Results: Histopathology revealed histoplasmosis of the temporal bone. Following surgical debridement, the patient was admitted for induction antifungal therapy with intravenous amphotericin and transitioned to long term oral itraconazole. Workup for central nervous system extension and immunocompromise were negative. Full facial nerve function returned after 4 months. Upon comprehensive literature review, patients with endemic mycoses were noted to have otologic manifestations due to histoplasmosis (n=2), blastomycoses (n=10) and coccidioidomycosis (n=4). Presenting symptoms, clinical course, treatment and outcomes were reviewed and summarized. Conclusions: Endemic fungal infections of the temporal bone are exceedingly rare, especially due to histoplasma capsulatum. In the setting of a dense granuloma, histopathology may reveal rare pathology rather than the much more common inflammatory reaction to cholesteatoma. In the setting of a perforation, exposure of the ear to bird guano can result in histoplasmosis infection via self-inoculation.

C144. **Relationship of the Size and Location of Superior Semicircular Canal Dehiscence with Clinical Presentation**
Hong-Ho Yang, BS, Los Angeles, CA; Vishal Patel, MD, Los Angeles, CA; Isaac Yang, MD, Los Angeles, CA; Quinton S. Gopen, MD, Los Angeles, CA

Educational Objective: At the conclusion of this presentation, the participants should be able to appreciate how superior semicircular canal dehiscence size and location are associated with clinical manifestations.

Objectives: The present investigation explores the relationship of superior semicircular canal dehiscence (SSCD) size and location with symptomatology and audiometric findings. Study Design: Retrospective review. Methods: 402 SSCD cases at a tertiary care institution from 2011 to 2022 were retrospectively reviewed. Manual measurements of dehiscence length and width were performed on high resolution (0.625 mm) temporal bone CT scans and approximate dehiscence area (ADA) was calculated. Dehiscence location was classified employing a 6 grade scale. Multivariable regressions were conducted with symptomatology and audiometry variables as outcomes and ADA and location as primary covariates of interest. Results: Controlling for age, sex, laterality (unilateral vs. bilateral disease), and location of the dehiscence, patients with larger dehiscence had significantly higher odds of presenting with autophony and hyper-amplification, greater air bone gaps at 500Hz and 1000Hz, and suprathreshold bone conduction threshold at 500Hz and 1000Hz. Dehiscence location was not independently associated with any outcome variable examined. Conclusions: This is the largest investigation on the relationship of SSCD size and location with clinical manifestations. Larger dehiscence size was associated with a significantly wider low frequency air bone gap and clinical presentations consistent with more severe bone conduction hyperacusis. Specifically, an ADA of 0.25mm2 was found to be an important reference for when a dehiscence could be considered large. These findings may advance current understanding of SSCD pathophysiology and aid in clinical risk assessment and counseling.

C145. **Exploration and Analysis of Cochlear Implant Content on Social Media**
Michelle Yu, MD MS, New York, NY; Sharon J. Feng, BA BS, New York, NY; Alexander Chern, MD, New York, NY

Educational Objective: At the conclusion of this presentation, the participants should understand the landscape of existing social media content relating to cochlear implants.

Objectives: Social media has an ever growing presence in patients' lives, particularly with dissemination of information. We performed an exploration and analysis of content pertaining to cochlear implantation on a popular social media platform. Study Design: Cross-sectional analysis. Methods: "Cochlear implant" (CI) was queried on TikTok in early October 2022; 100 top videos were collected. Non-English and duplicate videos were excluded. Two independent researchers used the Global Quality Scale (GQS) and modified DISCERN tool to score videos; higher ratings indicate increased quality and reliability. Demographic data was recorded. Results: Of 100 videos assessed, 95 met inclusion criteria. The average video had 2.36M views, 328K likes, and duration of 36.1s. Mean GQS was 1.91 (SD 0.85) and DISCERN score was 1.48 (SD 1.20). Posters were predominantly laypersons (93.7%), CI users, or parents of pediatric CI users. No videos featured audiologists or otolaryngologists. Nearly half of videos (48.4%) discussed a patient's or parent of a pediatric patient's experience with CIs; 24.2% were aimed at directly educating the viewer about CIs or the Deaf community. Top 5 hashtags included #cochlearimplant, #deaf, #fyp, #asl,

and #deafawareness; 41.1% of videos contained American Sign Language. Conclusions: The majority of videos featured CI users or family of pediatric CI users and detailed specific patient experiences. The Deaf community has a strong social media presence with CI users. Most videos had limited quality and reliability and no videos featured hearing healthcare professionals, highlighting opportunities for clinicians to use the platform as a patient resource.

Pediatric Otolaryngology

C146. Check This: Head and Neck Ice Hockey Injuries in Children
Beatrice Bacon, BS, Buffalo, NY; Lauren DiNardo, BS, Buffalo, NY; Francesca Viola, MD, Buffalo, NY; Michele Carr, DDS MD PhD, Buffalo, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to describe the epidemiology of non-concussion head and neck hockey injuries in children from 2010 to 2021.

Objectives: Our objective is to describe non-concussion head and neck ice hockey injuries in children in the U.S. Study Design: Retrospective cohort design with data from the NEISS database. Methods: The NEISS database was reviewed from 2010 to 2021 for injuries in the head, neck, mouth, eye, and ear related to ice hockey in children 1-18 years old. Records where the only injury was a concussion or internal head injury were removed. Frequencies and chi square tests were calculated. Results: 475 children were included, 426 (89.7%) male, with mean age of 13.1 years old (95% CI 12.7-13.4). Females were significantly younger with mean age 11.8 years versus 13.2 years for males (p=.018). 110 (23.2%) injuries were related to hockey sticks, 92 (19.4%) involved a fall, and 32 (6.7%) were subsequent to body checking. 301 of the injuries (63.4%) were lacerations, 71 (14.9%) contusions or abrasions, and 26 (5.5%) strains and sprains. The type of injury varied according to head and neck region (p<.001). 231 (82.8%) of facial injuries, 16 (76.2%) of ear injuries, and 33 (62.3%) of oral injuries were lacerations. Eight (1.7%) patients were admitted or observed overnight, the rest were discharged home. Conclusions: Female ice hockey players sustain injuries at younger ages than males, which may reflect the loss of older girls from the sport. In older boys, injury rates may reflect the loss of mandated full face protective shields.

C147. WITHDRAWN - Comparing Postoperative Complications Associated with Bone Anchored Hearing Aid (Baha) Connect and Attract Implantation in Pediatric Patients
Jordan C. Coburn, BS, Aurora, CO; Obinna Diala, MBBS MPH, Aurora, CO; Suhong Tong, MS, Aurora, CO; Stephen Newton, MD, Aurora, CO

C148. Adenoidectomy for Pediatric Chronic Rhinosinusitis in the Older Child
Amani Kais, MD, Morgantown, WV; Norman Orabi, MD, Morgantown, WV; Hassan H. Ramadan, MD MSc, Morgantown, WV

Educational Objective: At the conclusion of this presentation, the participants

should be able to be familiar with definition of pediatric chronic rhinosinusitis as well as maximal medical therapy. They will also be able to determine which child will be a candidate for an initial adenoidectomy even if in an older child (6 years of age or older), since most recent EPOS 2020 recommendation noted that adenoidectomy was recommended in younger children (less than 6 years).

Objectives: There is consensus that adenoidectomy should be an initial surgical procedure for treatment of chronic rhinosinusitis (CRS) especially in younger children. This is based on success of the procedure, whereas, there is not such evidence in the older child. Study Design: Retrospective review of children who had adenoidectomy for confirmed pediatric chronic rhinosinusitis. Methods: Review was conducted over a 10 year period of all children who had an adenoidectomy for confirmed CRS after failure of maximal medical therapy. Followup at a minimum of 12 months was performed. Allergy status and asthma were recorded. Success was defined via a questionnaire of parents after surgery as well as those who did not require additional surgery at a mean of 12 months post surgery. Results: 150 children were reviewed. Age range was 2-13 years (mean= 5.41) with a LM CT score range of 0-20 (mean=5.56). 85 (56.7%) were males, 44.8% had allergic rhinitis and 41% had asthma. Mean age of those who had success with the procedure was 6.1 years (std = 2.88) compared to mean age of 4.9 years (std=2.44) for those who failed, p value = 0.013. This translated to a 62.9% success for children older or equal to 6 years of age vs. 45.7% for those younger than 6 years of age. 13 (8.7%) children underwent ESS, with 4 (31%) older than 6 years of age. Conclusions: In this group of children, adenoidectomy can be a viable first line surgical option for older children who failed maximal medical therapy.

C149. Retrospective Study on Presentation Patterns and Outcomes of NICU Babies Undergoing Operative Airway Evaluation
Ziyang Li, MS, Lubbock, TX; Ethan Grant, BS, Lubbock, TX; Nadia Tello, MD, Lubbock, TX; Rahul Varman, MD, Lubbock, TX; Winslo Idicula, MD, Lubbock, TX

Educational Objective: At the conclusion of this presentation, the participants should be able to interpret characterized presentation pattern of newborns who received an operative airway evaluation during NICU hospitalization based on data from a single center and a single surgeon.

Objectives: 1) To characterize presentation pattern of newborns who received formal airway evaluation during NICU hospitalization; 2) to provide better anticipation for clinicians, and better counseling to parents of NICU babies undergoing operative airway evaluations. Study Design: Retrospective chart review. Methods: Retrospective EMR chart review from 2017-2021. Inclusion criteria consisted of babies under the age of one who required formal airway evaluations in the operating room due to persistent desaturations and respiratory distress. Data collection relating to demographics, birth history and intraoperative findings were analyzed. Results: A total of 29 patients met the inclusion criteria, with 14 male and 15 female patients.

75.7% (n=22) of the patients were born prematurely. 87.5% of the newborns were intubated prior to NICU hospitalization. The three most common presenting symptoms include: stridor (31.3%), failure to extubate (34.4%), and oxygen desaturation (15.6%). From direct laryngoscopy and bronchoscopy evaluations, 72.4% (n=21) of newborns had laryngomalacia, including 72.4% had tight or mildly tight AE fold, 20.1% had omega shaped epiglottis, and 10.3% had arytenoid hooding. 37.1% of newborns had grade 1 subglottic stenosis (Myer-Cotton Scale). An equal percentage of newborns had tracheomalacia (24.1%) or bronchomalacia (24.1%). Conclusions: This retrospective study based on data from a single center and a single surgeon clearly characterized presentation pattern of newborns who received an operative airway evaluation during NICU hospitalization. The outcome of our study allows clinicians to better educate and counsel parents through diagnosis and treatment of premature babies with associated airway syndromes.

C150. **Transcutaneous versus Blood Gas Measurement of CO2 in Neonates: Variation by Method and Racial Group**
Samantha R. Scott, BA, Albany, NY; Taylor Dugan, MSc, Albany, NY (Presenter); Sean Setzen, BA, Albany, NY; Chad Pezzano, MA RRT-NPS, Albany, NY; Paul Feustel, MEng PhD, Albany, NY; Lara Reichert, MD MPH, Albany, NY

Educational Objective: At the conclusion of this presentation, the participants should be able to understand the accuracy of transcutaneous CO_2 monitoring as it relates to venous, arterial, and capillary CO_2 values between and within racial groups.

Objectives: Transcutaneous CO_2 monitors (TCOMs) are used to noninvasively monitor blood CO_2 levels in acute care settings, however, their accuracy has been shown to vary. We sought to study the correlation between TCOMs and arterial, capillary, and venous CO_2 blood gas measurements in neonatal patients. We also sought to examine any variability across different racial groups. Study Design: Using a retrospective chart review, we analyzed CO_2 data in our neonatal ICU over 1 year. We collected arterial, venous, and capillary CO_2 measurements that occurred within one hour of TCOM measurement. Methods: A Bland-Altman analysis examined the degree of bias present between TCOMs and arterial, venous, and capillary CO_2. Results: 25 patients were studied over a 1 year period. Arterial measurements maintained the highest degree of difference from TCOM values (degree of bias 9.3 torr). Venous monitoring and TCOMs yielded the lowest degree of bias (-.46 torr), though this sample size was the lowest of our blood gas types. Capillary POC testing values yielded an intermediate bias (4.12 torr). Greater agreement existed when blood gas CO_2 values increased over time for a given patient. No difference in the amount of bias was appreciated between racial groups. Conclusions: Transcutaneous CO_2 monitoring in NICU patients is within the accepted manufacturer range of error when compared to blood gas analysis and can be considered an accurate, noninvasive method of monitoring. Capillary point of care analysis is an efficient means of confirming TCOMs and had better agreement than the more invasive arterial gases.

TRIOLOGICAL SOCIETY NATIONAL AWARDS

The Triological Society Gold Medal

1933 . . . . .Max. A. Goldstein, MD
2001 . . . . .Byron J. Bailey, MD
2005 . . . . Michael M.E. Johns, MD
2009 . . . . .Patrick E. Brookhouser, MD
2013 . . . . Harold C. Pillsbury, MD
2023 . . . . .Myles L. Pensak, MD FACS

Patrick E. Brookhouser, MD Award for Excellence

2013 . . . . Gerald B. Healy, MD FACS
2014 . . . . H. Bryan Neel III, MD PhD FACS
2015 . . . . Robert H. Miller, MD MBA FACS
2016 . . . . Frank E. Lucente, MD FACS
2017 . . . . Charles M. Luetje, MD FACS
2018 . . . . Roger L. Crumley, MD MBA FACS
2019 . . . . .Stanley M. Shapshay, MD FACS
2020 . . . . .Jonas T. Johnson, MD
2021 . . . . none--virtual meeting
2022 . . . . Robert H. Ossoff, DMD MD FACS
2023 . . . . .Jesus E. Medina, MD FACS

EXECUTIVE SECRETARIES

1896 to 1900 . . . . Robert C. Myles, MD
1901 to 1906 . . . . Wendell C. Phillips, MD
1907 to 1916 . . . . .Thomas J. Harris, MD
1917 to 1924 . . . . William H. Haskins, MD
1925 to 1936 . . . . .Robert L. Loughran, MD
1936 to 1962 . . . . C. Stewart Nash, MD
1962 to 1968 . . . . Victor R. Alfaro, MD
1968 to 1974 . . . . Louis E. Silcox, MD
1974 to 1980 . . . . Richard R. Ruggles, MD
1980 to 1984 . . . . William M. Trible, MD
1984 to 1988 . . . . .Frank N. Ritter, MD
1989 to 1992 . . . . Michael M.E. Johns, MD
1993 to 1996 . . . . Robert H. Miller, MD
1997 to 2004 . . . . .Patrick E. Brookhouser, MD
2005 . . . . .Gerald B. Healy, MD
2006 to 2011 . . . . .Patrick E. Brookhouser, MD
2011 to 2013 . . . . .Gerald B. Healy, MD

EXECUTIVE VICE PRESIDENT

2013 to 2023 . . . . Myles L. Pensak, MD

PRESIDENTS

1896 . . . . Edward B. Dench, MD	1944 . . . . H. Marshall Taylor, MD
1897 . . . . Frank Hyatt, MD	1945 . . . . Albert C. Furstenberg, MD
1898 . . . . William H. Daley, MD	1946 . . . . Albert C. Furstenberg, MD
1899 . . . . S.E. Solly, MD	1947 . . . . Harry W. Lyman, MD
1900 . . . . .D. Brayden Kyle, MD	1948 . . . . Lyman G. Richards, MD
1901 . . . . Robert C. Myles, MD	1949 . . . . .John J. Shea, MD
1902 . . . . Charles W. Richardson, MD	1950 . . . . .Robert C. Martin, MD
1903 . . . . .J.A. Stuckey, MD	1951 . . . . .Louis H. Clerf, MD
1904 . . . . Norval H. Pierce, MD	1952 . . . . C. Steward Nash, MD
1905 . . . . Frederick F. Cobb, MD	1953 . . . . .Francis E. LeJeune, MD
1906 . . . . James E. Logan, MD	1954 . . . . .Leroy A. Schall, MD
1907 . . . . .Wendel C. Phillips, MD	1955 . . . . Kenneth M. Day, MD
1908 . . . . .Ewing W. Day, MD	1956 . . . . Dean M. Lierle, MD
1909 . . . . Christian R. Holmes, MD	1957 . . . . .Percy E. Ireland, MD
1910 . . . . James F. McKenna, MD	1958 . . . . Lawrence R. Boies, MD
1911 . . . . Chevalier Jackson, MD	1959 . . . . .Gordon D. Hoople, MD
1912 . . . . .G. Hudson Jakuen, MD	1960 . . . . Theodore E. Walsh, MD
1913 . . . . H. Holbrook Curtis, MD	1961 . . . . .Fletcher D. Woodward, MD
1914 . . . . Joseph A. White, MD	1962 . . . . John R. Lindsay, MD
1915 . . . . Robert Levy, MD	1963 . . . . Howard P. House, MD
1916 . . . . S. MacCuen Smith, MD	1964 . . . . John E. Bordley, MD
1917 . . . . .Thomas J. Harris, MD	1965 . . . . . George E. Shambaugh, Jr., MD
1918 . . . . George L. Richards, MD	1966 . . . . Francis W. Davison, MD
1919 . . . . Herbert S. Birkett, MD	1967 . . . . Shirley H. Baron, MD
1920 . . . . Harris P. Mosher, MD	1968 . . . . .G. Slaughter Fitz-Hugh, MD
1921 . . . . .Lee Wallace Dean, MD	1969 . . . . Jerome A. Hilger, MD
1922 . . . . Lewis A. Coffin, MD	1970 . . . . .Joseph L. Goldman, MD
1923 . . . . Dunbar Roy, MD	1971 . . . . Victor Goodhill, MD
1924 . . . . Hanau W. Loeb, MD	1972 . . . . Victor R. Alfaro, MD
1925 . . . . William H. Haskin, MD	1973 . . . . Walter P. Work, MD
1926 . . . . John M. Ingersoll, MD	1974 . . . . .Raymond E. Jordan, MD
1927 . . . . Burt R. Shurly, MD	1974 . . . . Louis E. Silcox, MD
1928 . . . . John F. Barnhill, MD	1975 . . . . David D. DeWeese, MD
1929 . . . . Hill Hastings, MD	1976 . . . . .James A. Harrill, MD
1930 . . . . .Ross Hall Skillern, MD	1977 . . . . Joseph H. Ogura, MD
1931 . . . . Max A. Goldstein, MD	1978 . . . . Daniel Miller, MD
1932 . . . . Edmund Prince Fowler, MD	1979 . . . . Francis A. Sooy, MD
1933 . . . . Joseph C. Beck, MD	1980 . . . . Beverly W. Armstrong, MD
1934 . . . . .J.W. Jervey, MD	1981 . . . . G. O'Neill Proud, MD
1935 . . . . .Perry G. Goldsmith, MD	1982 . . . . John A. Kirchner, MD
1936 . . . . Thomas E. Carmody, MD	1983 . . . . .Robin Michelson, MD
1937 . . . . .George M. Coates, MD	1984 . . . . .Carl N. Patterson, MD
1938 . . . . .Samuel J. Kopetzky, MD	1985 . . . . .William H. Saunders, MD
1939 . . . . Harold I. Lillie, MD	1986 . . . . .Wesley H. Bradley, MD
1940 . . . . Lee M. Hurd, MD	1987 . . . . .Roger Boles, MD
1941 . . . . J. Mackenzie Brown, MD	1988 . . . . Harold G. Tabb, MD
1942 . . . . .James A. Babbitt, MD	1989 . . . . Malcolm H. Stroud, MD
1943 . . . . James G. Dwyer, MD	1990 . . . . .M. Stuart Strong, MD

PRESIDENTS cont'd

1991 . . . . Paul H. Ward, MD	2007 . . . . David F. Wilson, MD
1992 . . . . A. Paul Keller, Jr., MD	2008 . . . . Harold C. Pillsbury, MD
1993 . . . . Frank N. Ritter, MD	2009 . . . . Myles L. Pensak, MD
1994 . . . . Richard R. Gacek, MD	2010 . . . . Frank E. Lucente, MD
1995 . . . . Patrick J. Doyle, MD	2011 . . . . Gerald S. Berke, MD
1996 . . . . William R. Hudson, MD	2012 . . . . Robert H. Ossoff, DMD MD
1997 . . . . H. Bryan Neel, MD	2013 . . . . Jesus E. Medina, MD
1998 . . . . Stanley M. Blaugrund, MD	2014 . . . . Jonas T. Johnson, MD FACS
1999 . . . . Mansfield F. W. Smith, MD	2015 . . . . Derald E. Brackmann, MD
2000 . . . . Charles W. Gross, MD	2016 . . . . Fred D. Owens, MD
2001 . . . . Edward L. Applebaum, MD	2017 . . . . Charles W. Beatty, MD FACS
2002 . . . . Gerald B. Healy, MD	2018 . . . . Mark S. Persky, MD FACS
2003 . . . . Roger L. Crumley, MD	2019 . . . . Sigsbee W. Duck, MD FACS
2004 . . . . Robert A. Jahrsdoerfer, MD	2020/2021 . . . . C. Gaelyn Garrett, MD
2005 . . . . Patrick E. Brookhouser, MD	2022 . . . . Michael S. Benninger, MD FACS
2006 . . . . Stanley M. Shapshay, MD	2023 . . . . Ralph B. Metson, MD FACS

GUESTS OF HONOR

1947 . . . . J. McKenzie Brown, MD	1976 . . . . John Bordley, MD
1948 . . . . Harold Walker, MD	1977 . . . . Max Soni, MD
1949 . . . . Claude C. Cody, Jr., MD	. . . . W.E.N. Harrison, MD
1950 . . . . Harris P. Mosher, MD	1978 . . . . Moses Lurie, MD
1951 . . . . Duncan McPherson, MD	1979 . . . . Shirley Baron, MD
1952 . . . . D.C. Jarvis, MD	1980 . . . . Frank Lathrop, MD
1953 . . . . Charles A. Thigpan, MD	. . . . Harry Rosen-Wasser, MD
1954 . . . . J. Parsons Schaeffer, MD	1981 . . . . Ben Senturia, MD
1955 . . . . Edward P. Fowler, MD	1982 . . . . Harold Schuknecht, MD
1956 . . . . Harold L. Lillie, MD	. . . . Ugo Fisch, MD
1957 . . . . Not Available	1983 . . . . Walter Work, MD
1958 . . . . Arnold S. Diehl, MD	. . . . Roy B. Cohn, MD
1959 . . . . Frederick T. Hill, MD	1984 . . . . Beverly Armstong, MD
1960 . . . . Terence Cawthorne, MD	1985 . . . . G.O. Proud, MD
1961 . . . . Milton J. Robb, MD	1986 . . . . Daniel Miller, MD
1962 . . . . Thomas C. Galloway, MD	1987 . . . . Paul Ebert, MD
1963 . . . . Robert C. Martin, MD	1988 . . . . Robert W. Brown, MD
1964 . . . . C. Stewart Nash, MD	1989 . . . . Hallowell Davis, MD
1965 . . . . Georges Portmann, MD	1990 . . . . George Reed, MD
1966 . . . . Gordon D. Hoople, MD	1991 . . . . Victor Goodhill, MD
1967 . . . . Albery C. Furstenberg, MD	1992 . . . . Roger Boles, MD
1968 . . . . Francis E. LeJeune, MD	1993 . . . . C. Ryan Chandler, MD
1969 . . . . Lawrence R. Boies, MD	1994 . . . . John Conley, MD
1970 . . . . Victor Alfaro, MD	1995 . . . . Paul H. Ward, MD
1971 . . . . Vern O. Knudsen, PhD	1996 . . . . Bobby Ray Alford, MD
1972 . . . . Carlos Munoz-MacCormick, MD	1997 . . . . Robert Cantrell, MD
1973 . . . . Dean Lierle, MD	1998 . . . . Patrick J. Doyle, MD
1974 . . . . Raymond Jordon, MD	1999 . . . . Richard L. Goode, MD
1975 . . . . Frank Lathrop, MD	2000 . . . . A. Paul Keller, MD

GUESTS OF HONOR cont'd

2001 . . . . Charles W. Cummings, MD
2002 . . . . Stanley M. Shapshay, MD
2003 . . . . Brian F. McCabe, MD
2004 . . . . .Byron J. Bailey, MD
2005 . . . . .Robert H. Miller, MD MBA
2006 . . . . .Gerald B. Healy, MD
2007 . . . . .William F. House, MD
2008 . . . . .Patrick E. Brookhouser, MD
2009 . . . . Harry R. van Loveren, MD
2010 . . . . .Gady Har-El, MD
2011 . . . . Harold C. Pillsbury, MD
2012 . . . . Paul A. Levine, MD

2013 . . . . Robert H. Mathog, MD
2014 . . . . Michael M.E. Johns, MD
2015 . . . . Gerald S. Berke, MD FACS
2016 . . . . .William H. Owens, MD
2017 . . . . H. Bryan Neel, III, MD PhD FACS
2018 . . . . . Dana M. Thompson, MD FACS
2019 . . . . . . .Harold C. Pillsbury, MD FACS
2020 . . . . cancelled due to COVID
2021 . . . . Mark S. Courey, MD
2022 . . . . .Robert T. Sataloff, MD FACS
2023 . . . . Stacey T. Gray, MD FACS

JOSEPH H. OGURA, MD LECTURERS

1986 . . . . Hugh F. Biller, MD
1987 . . . . Paul H. Ward, MD
1988 . . . . John Conley, MD
1989 . . . . George A. Sisson, MD
1990 . . . . Sir Donald F.N. Harrison
1991 . . . . .Robert W. Cantrell, MD
1992 . . . . Michael E. Johns, MD
1993 . . . . .John A. Kirchner, MD
1994 . . . . John Lewis, MD
1995 . . . . Eugene Myers, MD
1996 . . . . Charles W. Cummings, MD
1997 . . . . .Harold C. Pillsbury III, MD
1998 . . . . Frank E. Lucente, MD
1999 . . . . Haskins Kashima, MD
2000 . . . . .Christopher Perry, MD
2001 . . . . Richard R. Gacek, MD
2002 . . . . .David G. Nathan, MD
2003 . . . . Arnold G. D. Maran, MD
2004 . . . . Ernest A. Weymuller, Jr., MD
2005 . . . . Gerald B. Healy, MD

2006 . . . . Jonas T. Johnson, MD
2007 . . . . Byron J. Bailey, MD
2008 . . . . .Paul A. Levine, MD
2009 . . . . Robin T. Cotton, MD
2010 . . . . .Marvin P. Fried, MD
2011 Lord Bernard Ribeiro Kt CBE FRCS FACS (Hon.)
2012 . . . . James L. Netterville, MD
2013 . . . . .Randal S. Weber, MD
2014 . . . . .David E. Eibling, MD FACS
2015 . . . . Uttam K. Sinha, MD FACS
2016 . . . . .Jonas T. Johnson, MD FACS
2017 . . . . .Eric J. Moore, MD FACS
2018 . . . . Dana M. Thompson, MD FACS
2019 . . . . .James P. Bagian, MD PE
2020 . . . . .cancelled due to COVID
2021 . . . . C. Buddy Creech, MD MPH
2022 . . . . Lara Jehi, MD MHCDS
2023 . . . . . . Rochelle P. Walensky, MD MPH

IN MEMORIAM

The following deaths have been reported to the Administrative Office since the publication of the 2022 Annual Program.

	Elected	Died
Thomas C. Calcaterra, MD FACS	1979	2021
Jack L. Gluckman, MD FACS	1986	2022
I. Sidney Jaffee, MD FACS	1968	2021
Sid Khosla, MD	2012	2022
Sam E. Kinney, MD FACS	1976	2022
Paul Moxham, MD	2007	2023
John H. Per-Lee, MD	1973	2022
James Byron Snow Jr., MD FACS	1968	2022
Ronald L. Steenerson, MD	2020	2022
Giovana R. Thomas, MD FACS	2016	2023
Ralph F. Wetmore, MD FACS	1993	2022

The Triological Society
UPHOLDING THE NOBLE LEGACY

www.triological.org

The Triological Society Call for Papers

Section Meeting Submission Deadline
AUGUST 1, 2023

Combined Sections Meeting
JANUARY 25-27, 2024
Hilton West Palm Beach & West Palm Beach Convention Center, West Palm Beach, FL

Annual Meeting Submission Deadline
OCTOBER 15, 2023

126th Annual Meeting at COSM
MAY 15-19, 2024
Hyatt Regency Chicago, Chicago, IL

OPENS JULY 1, 2023
SUBMIT ABSTRACTS ONLINE AT WWW.TRIOLOGICAL.ORG

All abstracts accepted for oral or poster presentation are the property of the Triological Society. Manuscript submission to The *Laryngoscope* or *Laryngoscope Investigative Otolaryngology* is required prior to oral presentation.

The material in all abstracts may not be submitted for publication, published or presented previously at another national or international meeting and may not be under consideration for presentation at another national or international meeting. The penalty for duplicate presentation/ publication will prohibit all authors from presenting at a Triological Society meeting or at COSM for three years.

Travel grants are available to Fellows, Residents, and Medical Student presenters. Information is available at www.triological.org/membership.html

Triological Society CME Breakdown	
May 4, 2023	
Theses Awards Presentations 9:17 am - 9:35 am	0.50
Laryngology/Bronchoesophagology Session 10:05 am - 11:25 am	1.25
Pediatric Panel 11:25 am - 12:05 pm	0.75
Facial Plastics Session 1:00 pm - 1:35 pm	0.50
Rhinology/Allergy Panel 1:35 pm - 2:20 pm	0.75
Pediatric Otolaryngology and General Session 2:45 pm - 5:15 pm	2.50
May 5, 2023	
Facial Plastics Concurrent Panel 8:05 am - 8:50 am	0.75
Rhinology/Allergy Concurrent Session 8:50 am - 9:35 am	0.75
Head & Neck Concurrent Session 8:05 am - 9:35 am	1.50
Otology Concurrent Session 10:00 am - 11:25 am	1.50
Sleep and Geriatric Concurrent Session 10:00 am - 11:30 am	1.50
General Concurrent Panel 11:25 am - 12:10 pm	0.75
General Concurrent Panel 11:30 am - 12:00 pm	0.75
Total	**10.00**

QR Code for Program Evaluation