of female presenters stratified by specialty area, were compared between 2017 and 2020 to quantify any change in female participation following the addition of the checkbox.

Results: There was a significant increase in the proportion of female panel presenters from 26.4% (total n = 576) in 2017 to 33.9% (total n = 469) in 2020 (P = .008). There was a corresponding increase in the proportion of female presenters in most specialty areas: business (30% increase), comprehensive otolaryngology (21%), endocrine surgery (67%), head and neck surgery (52%), otology/neurotology (38%), pediatrics (83%), rhinology (29%), and sleep medicine (31%). In addition, the number of panels with no female representation decreased from 34% in 2017 to 25% in 2020.

Conclusion: This study demonstrates that the addition of a checkbox reminding panel organizers to consider diversity was positively correlated with the proportion of female presenters. Representation matters, and when women and minority physicians see people who look like themselves in leadership positions, they are more comfortable aspiring to such heights in their own careers. Thus, the simple checkbox strategy, along with other tactics such as diversifying panel coordinators, can be implemented by local, regional, national, and international medical conferences to help close the gender gap.

Trends in Spending and Utilization for Drugs Prescribed by Otolaryngologists
Shivani A. Shah (Presenter); Lauren E. Miller, MD, MBA; Vinay K. Rathi, MD, MBA

Introduction: The significant and rising cost of prescription drugs is a pressing concern for patients and payers. Little is known about spending on drugs prescribed by otolaryngologists.

Method: Using publicly available Medicare Part D Prescriber Public Use data, we conducted a retrospective cross-sectional analysis of 34 small-molecule drugs commonly prescribed by otolaryngologists (defined as 2017 Medicare Part D spending ≥$500,000) to Medicare beneficiaries. Drugs were characterized by type (brand name vs generic). Primary outcomes for each drug included total annual spending and total annual number of days supplied. The secondary outcome was the mean drug price per day.

Results: Between 2013 and 2017, total spending on drugs prescribed by otolaryngologists to Medicare beneficiaries decreased by $32.1 million ($131.7 to $99.5 million; relative decrease 24.4%; compound annual growth rate [GR] −5.4%), while total utilization increased by 24.9 million days supplied (74.6 to 99.5 million; relative increase 33.3%; GR 5.9%). For brand-name drugs, there was a decrease in spending ($71.1 million to $26.7 million; relative decrease −62.4%; GR −17.8%) and utilization (11.2 million to 3.1 million days supplied; relative decrease −72.5%; GR −22.8%). In contrast, generic drugs demonstrated increased spending ($60.6 million to $72.8 million; relative increase 20.2%; GR 3.7%) and utilization (63.5 million to 96.4 million days supplied; relative increase 51.9%; GR 8.7%). The mean price per day increased for all (n = 6 of 6; 100.0%) drugs without available generics.

Conclusion: Spending on drugs prescribed by otolaryngologists to Medicare Part D beneficiaries declined between 2013 and 2017 due to a transition from brand name drugs to lower-cost generic equivalents.

Using Machine Learning to Predict Case-Time Duration in Otolaryngology
Lauren E. Miller, MD, MBA (Presenter); William Goedicke; Matthew Crowson, MD; Aalok Agarwala; Matthew Nauheim

Introduction: Operating room optimization including accurate case duration estimates is essential for delivering efficient and cost-effective care. Given the ability of machine learning (ML) methods to leverage complex and heterogeneous preexisting data to predict case duration estimates, we hypothesize that ML can improve projected case lengths over existing non-ML techniques.

Method: De-identified patient information from otolaryngology surgical cases at 1 academic institution were retrospectively reviewed from 2016 to 2020. Variables collected included all patient, surgeon, procedure, and facility data known preoperatively to capture all realistic contributors. Available case data were divided into a training data set and a testing data set. Several ML algorithms were evaluated based on greatest performance of predicted case duration when compared with actual case duration. Performance of all models was compared by the average root mean squared error and mean absolute error.

Results: A total of 44,697 otolaryngology surgical cases were evaluated. The average case duration time was 97.5 ± 89.5 minutes. The most common procedure performed was myringotomy with tube placement (n = 5960), and most cases were general otolaryngology (n = 13,705) cases. The most influential predictors included procedure performed, surgeon, type of case by subspecialty, and day-of-surgery case status. The best-performing ML models were tboost and XGBoost, which reduced our operative time mean absolute predictive error by 22 minutes and 8 minutes, respectively. Using the best-performing model and financial estimates, this reduction in error could yield $600,000 in annual operational savings.

Conclusion: ML algorithms to predict operating room case time duration in otolaryngology have the potential to improve operational efficiency and result in significant cost savings.

Comprehensive Otolaryngology
Accurate Measurement of Neck Flexion Angle During Otolaryngologic Surgery
Zhen Hu (Presenter); Hanqing Duan; Christopher R. Razavi; Francis X. Creighton, MD; Russell H. Taylor, PhD; Deepa Galaiya, MD

Introduction: There is increasing evidence showing that a surgeon’s posture while operating can contribute to chronic pain. The purpose of the study is to accurately measure the surgeon’s neck flexion angle while performing otolaryngologic surgery,
Adult Tonsillectomy: An Evaluation of Indications and Complications

Shivam D. Patel (Presenter); Ghazal Staity; Linda Engle; Junjia Zhu, PhD; Guy Slonimsky, MD

Introduction: Contrary to the abundant literature on the indications and complications associated with pediatric tonsillectomies, the literature regarding adult tonsillectomies is scarce. The aim of this study was to evaluate the current adult tonsillectomy indications, along with factors associated with postoperative complications.

Method: A retrospective cohort study was conducted by reviewing medical records from 2004 to 2020. Demographic, social, and clinical data were collected. Indications for surgery were categorized as infectious etiology, biopsy, obstructive sleep apnea (OSA), and tonsillar stones. Data regarding postoperative hemorrhage, emergency department (ED) visits, and readmissions were collected. Bivariate association methods and multivariable logistic regression models were used to evaluate factors associated with postoperative complications.

Results: The neck flexion angle for traditional thyroid surgery is mainly at 60° to 90°, with the mean at 74.93°. The standard deviation is 25.16°. The total time recorded for the traditional case was 38.19 seconds. The total amount of time the surgeon spent at greater than 50°, the threshold angle for harmful trapezius pressure, was 32.34 seconds, or 84.7% of the time. For the endoscopic case, the neck flexion angle remains primarily at 25° to 35° with the mean at 32.11°. The standard deviation is 6.68°. The maximum angle is 48.25°, and the harmful 50° threshold was never achieved.

Conclusion: Previous studies have shown that trapezius muscle fatigue is highest when the neck flexion angle is greater than 50°. Our results show that traditional open surgery, such as thyroid surgery, is done with a neck flexion angle greater than 50° for the majority of the time. In contrast, the neck flexion angle remains near 30° for the endoscopic case. This study argues in favor of the development of "heads up" techniques for surgery, including the use of endoscopes or exoscopes when possible.

Are CT Scans Necessary for the Diagnosis of Peritonsillar Abscess?

Andy Wang (Presenter); Michael J. Eliason, MD; Michael D. Seidman, MD

Introduction: Computed tomography (CT) scans are routinely used in the diagnosis of peritonsillar abscesses (PTA), adding more than $150 million to the diagnosis each year. We propose that the use of CT scan in the diagnosis of PTA is often unwarranted. In addition to costs, one needs to consider radiation exposure and whether CT scans accurately differentiate phlegmon vs abscess. This study compared CT findings with clinical examination to elucidate their accuracy and utility in the management of PTA.

Method: A retrospective chart review was performed of patients who presented with throat pain (ICD-9: 462, 463, 475, and 784.1) to 1 of 8 AdventHealth Orlando emergency departments from January through April of 2013. Patients with clinical diagnosis of PTA were reviewed. The accuracy of CT scans was determined by comparing the read to the outcome of a procedural intervention for abscess drainage. Likewise, those diagnosed via clinical exam only and who underwent procedural intervention were assessed for clinical accuracy.

Results: A total of 6280 patients met inclusion for review, and 116 of these were clinically diagnosed with PTA. Some 99 (85.3%) underwent CT scan and 27 (23.3%) had procedural intervention. Patients were managed medically without procedure 76.7% of the time (89 patients). Procedural intervention confirmed the presence of a PTA and accuracy of a positive radiology read in 69.6% of the patients. This represents a CT scan false-positive rate of 30.4%. Procedural intervention in those without a diagnostic CT confirmed PTA in all patients, representing a true-positive rate of 100%.

Conclusion: This study confirms a high incidence of CT scans used for the diagnosis of PTA but demonstrates a high false-positive rate as compared with the procedural intervention by an otolaryngologist. Many reading radiologists have a difficult time delineating phlegmon from abscess. Clinical exam alone is appropriate care for these patients.
**Are Goiters More Common in Certain Racial and Ethnic Groups?**

Lily Young, MS (Presenter); Thomas J. Ow, MD, MS; Juan Lin, PhD; Vikas Mehta, MD, MPH

**Introduction:** While the relationship between race/ethnicity and thyroid cancer has been extensively studied, there is little information about the relationship with benign thyroid disease, especially with respect to thyroid growth. We aim to determine if there is a significant correlation between race/ethnicity and total thyroid volume.

**Method:** We performed a retrospective cohort study of benign thyroid disease patients (n = 457) from June 2008 to May 2020. Exclusion criteria were age <18 years, incidental finding of thyroid cancer >1.0 cm, or history of previous thyroid surgery. The primary outcome was total thyroid volume (cm³/mL) calculated from ultrasound measurements. The secondary outcome was the maximum dimension (cm) of the largest thyroid nodule. Demographic (race, ethnicity, sex, age), historical (family history and radiation exposure), and thyroid-specific data (thyroid-stimulating hormone, fT4, Bethesda score, and thyroid medications) were recorded. We performed f-tests on the primary and secondary outcomes alongside the covariates and multivariate linear regression to assess which variables were independently associated with total thyroid volume and maximum nodule dimension.

**Results:** Black patients (n = 176) had a mean thyroid volume of 142.7 ± 131.1 and a mean maximum nodule dimension of 4.3 ± 1.9, while White patients (n = 34) had a mean thyroid volume of 74.7 ± 128.0 and a mean maximum nodule size of 3.0 ± 1.5. In the multivariate model, Black patients were independently correlated with total thyroid volume (P = .0008; β estimate = .501; 95% CI, 0.209, 0.794) and maximum nodule dimension (P = .05; β estimate = .642; 95% CI, 0.006, 1.278).

**Conclusion:** Our data demonstrated that Black patients had significantly larger total thyroid volumes and nodules compared with White patients. Total thyroid volume was not associated with measures of socioeconomic status such as insurance type or estimated income, which suggests that access may not fully explain the differences seen. Although these findings illustrate an important relationship between race and thyroid volume, more research is required to determine the etiology of this discrepancy.

**Characterization of Electronic Cigarette Users in the Otolaryngology Clinic**

Peter M. Debbaneh, MD (Presenter); Sanidhya Dhir; Alexander Rivero, MD

**Introduction:** Despite prevalent use, electronic nicotine delivery systems (ENDS), also called “electronic cigarettes,” have unknown clinical effects. Most research surrounding ENDS use and upper respiratory tract disease has been conducted in vitro or in animal model studies, with few clinical studies analyzing the association between ENDS use and upper respiratory tract disease.

**Method:** In this retrospective cohort study of patients in a multilocation health maintenance organization system based in Northern California, patient records of ENDS users who visited the otolaryngology clinic between January 1, 2018, and December 31, 2019, were reviewed for diagnoses and classified as either inflammatory or noninflammatory.

**Results:** A total of 89 patients had 104 diagnoses. Some 47.2% of ENDS users had at least 1 inflammatory diagnosis, the most common of which were chronic otitis media (6.9%) and allergic rhinitis (5.9%). ENDS use was increased in White, male patients between the ages of 18 and 35 years, which is similar to previous reports. While the rate of inflammatory disease was significantly higher in male patients (60% vs 25%, P < .005), no significant difference was seen based on age or race.

**Conclusion:** Previous studies have shown an association between ENDS use and allergic rhinitis, and the current study suggests there may be an overall inflammatory response to ENDS use. The identification and description patients with ENDS use will help clinicians better risk stratify otolaryngologic diagnoses associated with this novel health behavior.

**COVID-19 Tracheostomy Outcomes**

Nicole L. Molin, MD (Presenter); Keith Myers; Ahmed Soliman, MD; Cecelia E. Schmalbach, MD, MSc

**Introduction:** The objectives of this study were to assess the overall mortality in ventilated COVID-19 patients with and without tracheostomy (trach) and to determine if trach decreased time of intubation and length of stay (LOS) in ventilated COVID-19 patients.

**Method:** In this prospective cohort study, patients were included if they were older than 18 years, diagnosed with COVID-19, and required invasive positive pressure ventilation (IPPV). Patients were divided in 2 groups: IPPV with trach and IPPV with intubation only. Outcome variables included mortality, LOS, intensive care unit (ICU) stay, and IPPV duration. Data were analyzed and compared between cohorts.

**Results:** Of the 258 patients included, 46 (17.8%) underwent trach placement (trach cohort) and 212 (82.2%) required IPPV but did not undergo trach placement (nontrach cohort); 34.5% were female and 65.5% were male; and the average age was 62 ± 14 years. The average LOS was 15 ± 11.5 and 36 ± 13 days for the nontrach and trach cohorts, respectively (P = .05).

**Conclusion:** While trach placement in COVID-19 patients did not shorten LOS, days on IPPV, or ICU stay, trach patients experienced a significantly lower number of deaths compared with those who did not undergo tracheostomy. One goal for tracheostomy is improved pulmonary toilet with associated shortened IPPV requirements. Our study did not identify this advantage among the COVID-19 population. Lastly, this study demonstrates that need for tracheostomy in the COVID-19 setting is not a poor prognostic factor as trach patients experienced a significantly higher survival rate compared with their nontrach counterparts.
COVID-19 Tracheostomy Patients in England: Observational Study Using Administrative Data
Annakan V. Navaratnam, MBBSc, FRCS (Presenter); William K. Gray

Introduction: Strategies for tracheostomy use in COVID-19 patients have varied between hospitals and changed over time as the pandemic progressed. The objective of our study was to determine the outcomes of patients undergoing tracheostomy for COVID-19 in England using administrative data.

Method: This was a retrospective observational study using the Hospital Episode Statistics (a mandatory administrative data set for National Health Service hospitals). Patients aged ≥18 years who had a diagnosis of COVID-19 during a hospital stay in England that was completed between March 1, 2020, and September 30, 2020, were included. Primary outcomes analyzed were having a tracheostomy inserted, in-hospital mortality, and length of stay. Multilevel logistic regression was used to model the relationship between tracheostomy insertion and in-hospital mortality with covariates including age, sex, deprivation, ethnicity, frailty, comorbidities, and date of discharge (alive or following death). Linear regression model was used to explore the association with length of stay and tracheostomy.

Results: There were 117,438 patients who had a diagnosis of COVID-19 during this time period. Of the 11,606 (9.9%) patients admitted to critical care, initial analysis has identified 921 (7.9%) with a tracheostomy. Predictors of having a tracheostomy inserted included age 40 to 69 years and Asian and Black ethnicity. In the critical care population, patients with a tracheostomy had a higher in-hospital mortality rate and longer lengths of stay. Tracheostomy rates increased during the first 5 months of the pandemic (March to July 2020), and there was significant regional variation in the tracheostomy use.

Conclusion: There was increased use of tracheostomy in England as more was learned about the disease, although there was still variation between centers in how it was used. In analyzing all patients who had hospital admissions for COVID-19 in England, we have been able to identify the factors that influenced patients having tracheostomies and the clinical indicators that were predictive of mortality.

Effect of Applicant Screening Methods on Racial/Ethnic Diversity in Otolaryngology
Christina Dorismond, MPH (Presenter); Zainab Farzal, MD, MPH; Rupali Shah, MD; Charles Ebert, MD, MPH; Robert Buckmire, MD

Introduction: Methods for screening applicants for the otolaryngology–head and neck surgery (OHNS) residency match, such as United States Medical Licensing Examination Step 1 scores, are commonly used due to the high number of applications residency programs receive. As the Step 1 exam becomes pass/fail, programs may begin to implement new screening methods in its stead. The aim of this study is to assess the impact of screening methods, such as Step 2 Clinical Knowledge (CK) scores and Alpha Omega Alpha (AOA) membership status, on the racial and ethnic diversity of the OHNS applicant pool.

Method: In this retrospective cohort study, residency applications submitted to our institution’s OHNS residency program for the 2014–2015 and 2019–2020 application cycles were reviewed. Applicants’ race/ethnicity, Step 2 CK scores, and AOA membership status were extracted. Race/ethnicity was categorized as underrepresented minorities (URM) vs non-URMs. URM was defined as Black/African American, Hispanic/Latino, Native American/Alaskan Native, and Hawaiian/Pacific Islander. Screening methods included Step 2 CK scores below the mean and 1 standard deviation (SD) below the mean, as well as non-AOA membership.

Results: Of the 2177 applicants included, 10.3% (n = 225) were URMs and 86.1% (n = 1875) reported Step 2 CK scores on their applications (mean 253, SD 12.9). A Step 2 CK score cutoff of 240 led to a 26.8% decrease in the representation of URM applicants vs a 12.3% decrease in non-URM applicants (P < .001), while a cutoff score of 253 led to a 61.1% decrease in URM representation vs a 40.7% decrease in non-URMs (P < .001). A similar disparity was found when AOA was used as a screening method (URM: −72.1%, non-URM: −56.0%, P < .001).

Conclusion: Otolaryngology has lagged behind other surgical subspecialties in terms of racial and ethnic diversity, a deficit that our national organizations have endeavored to eliminate. Our analyses show that using screening methods such as Step 2 CK scores and AOA membership negatively impacts the racial and ethnic diversity of the applicant pool. These data further support using a holistic evaluation method for the review of OHNS candidates.

Effectiveness and Safety of BDET With a Seeker-Based Device
Robert T. Standring, MD (Presenter); Ellen O’Malley; Joshua Greene; Joseph Russell; Edward D. McCoul, MD, MPH

Introduction: We collected real-world data on the safety and effectiveness of balloon dilation of the Eustachian tube using a seeker-based device in patients with persistent/chronic Eustachian tube dysfunction.

Method: This study was a multicenter, prospective, single-arm registry conducted from June 2018 through August 2020 throughout 10 US centers including tertiary care and private practices. Patients aged 18 years and older with eustachian tube dysfunction who underwent balloon dilation of the eustachian tube were studied. The primary endpoints included mean change from baseline in the 7-item Eustachian Tube Dysfunction Questionnaire (ETDQ-7) and the rate of serious related adverse events. Secondary endpoints include changes in middle ear assessments, surgical intervention rate, and changes in Sino-Nasal Outcome Test (SNOT-22) and Work and Activity Impairment (WPAI) questionnaires.
Results: A total of 169 participants were treated with balloon dilation of the Eustachian tube, with 166 and 154 participants completing the 6-week and 6-month follow-ups, respectively. Repeated-measures analysis of the change in ETDQ-7 scores indicated statistically significant improvement (P < .0001) at 6-month follow-up. The minimum clinically important difference of improvement was achieved by 85% of participants at 6 months. Four nonserious adverse events were reported. Middle ear functional assessments were improved in most participants with abnormal baseline findings. There were no statistically significant differences in the change from baseline ETDQ-7 scores between participants who had concurrent procedures and those who did not. Work/activity impairment demonstrated significant improvement.

Conclusion: Real-world evidence supports the clinical studies demonstrating that balloon dilation of the Eustachian tube with a seeker-based device is a safe and effective procedure.

Evaluation of Otolaryngology Caseload
Trends From 2005 to 2019
Alexandra Welschmeyer (Presenter); Kathleen Coerdt; Jason Crossley; Sonya Malekzadeh, MD

Introduction: Subspecialty caseloads logged by otolaryngology over the past 15 years are currently unknown. This study examines the trends at the national level.

Method: Otolaryngology case log data were collected from the Accreditation Council for Graduate Medical Education (ACGME) from 2005 to 2019. Data were categorized according to the following surgical subspecialties: pediatrics, rhinology/skull base, head and neck, facial plastics, otology, and laryngology. Linear regression analyses were performed for each procedure within each subspecialty, total subspecialty means, and total caseload means across all years.

Results: Overall surgical volume significantly increased between 2005 and 2019 (P < .0001); however, there was a significant decline in pediatrics procedures (R² = 0.80, P < .0001). Rhinology/skull base procedures increased the most drastically (R² = 0.96, P < .0001).

Conclusion: While total mean case logs have steadily increased between 2005 and 2019, pediatric cases have declined substantially due to fewer tympanostomy tube insertions and adenotonsillectomies. Rhinology/skull base procedures have increased most significantly secondary to an increase in endoscopic sinus surgeries. Despite changes in case volume among specialties, the annual increase in case load suggests that otolaryngology is meeting the demands of their graduate medical training.

Graduating Otolaryngology Residents’ Specialty Area Practice Preferences
Robert H. Miller, MD, MBA (Presenter); Richard K. Gurgel, MD, MSCI; Hilary McCrary, MD, MPH

Introduction: We aim to understand residents focus area preferences. Improve workforce predictions; and improve educational needs. These data have only recently been analyzed and represent significant new insights into the future of the specialty.

Methods: An anonymous 1-page survey instrument was completed by examinees at the conclusion of their American Board of Otolaryngology–Head and Neck Surgery oral examination from 2011 to 2019. Trends over time for specialty areas were evaluated using correlation and chi-square tests.

Results: Of the 2243 respondents, 22% will include general otolaryngology alone or in combination with another specialty area in their “ideal” practice. There was a statistically significant decline in interest in general and pediatric otolaryngology over the 8-year study period time (r = −0.81; P = .01 and r = −0.75; P = .03, respectively). Other selected specialties included rhinology (15%), head and neck (13%), and pediatric otolaryngology (11%). Excluding general otolaryngology, 45% would prefer to practice just 1 specialty area. Women entered academic practice more commonly than men did (43% vs 35%) and chose pediatric otolaryngology as one of their specialty areas more than men did (32% vs 22%; P < .05), whereas more men (41%) selected rhinology compared with women (29%) and head and neck (36% vs 26%; P < .05).

Conclusion: Although most otolaryngologists focus their practices on 1 or a few specialty areas, most workforce studies assume all otolaryngologists practice the full spectrum of the specialty, which can lead to faulty supply predictions. There is a trend for a more specialized practice with a decline in interest in general otolaryngology, which may affect access to comprehensive otolaryngology. These data will be of value in future workforce and education planning.

Impact of Saline Irrigations in Non-hospitalized Patients With COVID-19
Kyle S. Kimura, MD (Presenter); Michael H. Freeman; Justin H. Turner, MD, PhD

Introduction: Response to the COVID-19 pandemic has primarily focused on pharmacologic interventions, including antivirals, convalescent sera, and vaccinations, with each critical in the fight against COVID-19. Given previous studies demonstrating varying efficacy of saline irrigations on other viral diseases, we conducted a randomized controlled trial to evaluate the effect of nasal irrigations on upper respiratory symptoms and viral load in patients with COVID-19.

Method: This was a randomized control trial conducted from May 2020 to December 2020. Patients with a positive reverse transcriptase polymerase chain reaction SARS-CoV-2 test were enrolled within 24 hours of testing and given swabs, viral preservation media, and a symptom diary incorporating a modified version of the validated Wisconsin Upper Respiratory Symptom–21 Survey. Patients were randomized to 1 of 3 treatment arms: (1) twice-daily irrigations with hypertonic saline, (2) twice-daily irrigation with hypertonic saline with 1% surfactant, and (3) a non-intervention group. Participants performed scheduled mid-turbinate swabs and recorded daily temperatures and symptom scores over the 21-day study duration.

Results: The full set of results is to be discussed at the conference. Interim analysis demonstrated a trend toward earlier
Impact of Smoking on Postoperative Complications Following Tonsillectomy in Adults
Ariel Omiunu (Presenter); Giovanna Mele; Christina H. Fang, MD; Jean Anderson Eloy, MD

Introduction: Smoking has been associated with an increased risk of postoperative complications across a variety of surgical specialties. We aim to examine the relationship between smoking and postoperative complications in adult patients undergoing tonsillectomy.

Method: The National Surgical Quality Improvement Program was used to identify adult patients who underwent tonsillectomy with or without adenoidectomy between 2005 and 2015. Patients were divided into smoker and nonsmoker cohorts. Univariable and multivariable analyses were performed to assess the association between smoking status and risk of adverse outcomes.

Results: A total of 23,959 patients met inclusion criteria, of whom 4468 (18.6%) were smokers and 19,491 (81.4%) were nonsmokers. Smokers were more likely to be older (31.6 vs 30.8 years, $P < .001$), male (41.8%, $P < .001$), and obese (38.7%, $P < .001$) when compared with nonsmokers. Smokers were more likely to have hypertension ($P < .001$), dyspnea ($P < .001$), and chronic obstructive pulmonary disease ($P < .001$). On univariate analysis, smoking was associated with a higher incidence of total complications (2.2% vs 1.5%, $P < .001$), deep surgical site infections (0.1% vs 0.0%, $P = .02$), bleeding (0.3% vs 0.1%, $P < .001$), and sepsis (0.4% vs 0.1%, $P < .001$). Multivariable logistic regression analysis found that smoking was an independent predictor of postoperative bleeding (odds ratio [OR] = 4.55; 95% CI, 1.86–11.11; $P < .001$), unplanned admission (OR = 1.25; 95% CI, 1.00–1.55; $P = .045$), and readmission (OR = 1.26; 95% CI, 1.02–1.56; $P = .03$).

Conclusion: In adult patients undergoing tonsillectomy, smoking was found to be significantly associated with a higher incidence of unfavorable surgical outcomes, including postoperative bleeding, unplanned admission, and readmission.

Implementation of a Standardized Perioperative Pain Management Protocol in Otolaryngology
Michael Chang, MD (Presenter); Lauren Lalakes; Kimberly Shepard; Mih Saste; Amanda Munoz; Misha Amoils

Introduction: Opiates are commonly overprescribed postoperatively for otolaryngologic surgeries. We implemented and evaluated the efficacy of a standardized multimodal perioperative pain management protocol in reducing opiate prescriptions in an otolaryngology practice.

Method: We retrospectively studied adults undergoing otolaryngologic surgery at a county hospital from 2018 to 2019, comparing patient cohorts before and after implementation of a standardized pain protocol in 2019. The protocol included preoperative patient education and a postoperative multimodal pain regimen stratified by pain levels mild, intermediate, and high. We compared opiate use before and after protocol implementation. Patients were surveyed regarding pain levels and opiate use.

Results: We studied 210 patients (105 preprotocol and 105 postprotocol). Overall, the mean total morphine milligram equivalents (MME) prescribed decreased from 132.5 ± 117.8 to 53.6 ± 63.9 ($P < .05$) following protocol implementation. The mean MME prescribed significantly decreased ($P < .05$) for each procedure pain tier: mild (107.4 to 40.5), intermediate (112.8 to 48.1), and high (240.4 to 105.0). The mean MME prescribed significantly decreased ($P < .05$) for each procedure type: endocrine (105.6 to 44.4), facial plastics (225.0 to 50.0), general (160.9 to 105.7), head and neck oncology (138.6 to 77.1), laryngology (53.8 to 12.5), otology (77.5 to 42.9), rhinology (142.2 to 44.4), and trauma (288.0 to 24.5). Postprotocol patients reported a mean 1-week postoperative pain score of 3.4, used opiates for a mean of 3.1 days, and used only 31% of their prescribed opiates. Four postprotocol patients requested opiate refills, compared with 3 preprotocol.

Conclusion: Preoperative counseling and standardization of a multimodal perioperative pain regimen for otolaryngology procedures can effectively lower the amount of opiate prescriptions while adequately controlling pain levels.

Increased Otolaryngology Workforce Correlated With Decreased Burden of ENT-Diseases Globally
Gaebel B. Stanford-Moore, MD, MPhil (Presenter); Ankit Raj, MBBS; Gabrielle Hill, MPH; Irazoque Pacifique, MD; Blake Alkire, MD, MPH; Mahmood Bhatta, MBBS, DPhil, FRCS

Introduction: Workforce density is recommended by the Lancet Commission on Global Surgery as a core indicator of access to surgery. We quantified the global otolaryngology–head and neck surgery (OHNS) workforce and compared this to the estimated burden of diseases of the head and neck.

Method: We derived workforce estimates from a systematic literature review and unpublished data from a 2019 World Health Organization (WHO) survey. We compared per-country workforce density to population health outcomes of 4 index pathologies: lip and oral cavity cancer, laryngeal cancer, chronic otitis media, and hearing loss, using figures derived from the Global Burden of Disease data set. We performed multivariable regression of the number of ear, nose, and throat (ENT) surgeons per capita to mortality or morbidity from each disease.
pathology. Data were pooled by WHO region and by country income level.

Results: We obtained data on ENT surgical workforce for 138 countries. Every 10% increase in ENT surgeons worldwide was associated with a 0.18% decrease in morbidity from hearing loss ($P = .007$), measured as the years lost to disability (YLD) to prevalence ratio; a 0.10% decrease in morbidity from chronic otitis media ($P = .057$), measured as YLD to incidence ratio; and a 0.27% decrease in disease-specific mortality of lip and oral cavity cancer ($P = .035$), measured as mortality to incidence ratio. There was no relationship found for laryngeal cancer. Relationships were immune to important covariates, including gross domestic product per capita. In addition, there was a correlation between increasing ENT workforce and decreasing ENT burden of disease, which also clustered by country income level.

Conclusion: This is the first study to correlate and quantify global burden of ENT-related diseases to ENT workforce and suggests specialist human resources are an important component of national health planning in tackling such disorders.

Lips Don’t Lie? Utility of Labial Biopsy in Managing Sjögren’s
Joseph S. Lee, MD (Presenter); Jasmine Thai, MD; Minka Schofield, MD, MPH

Introduction: Patients with sicca symptoms are often referred to otolaryngologists for labial salivary gland biopsies (LSGB) to help diagnose Sjögren’s syndrome (SS). This study investigates the utility of LSGB in the management of patients with SS and potential predictive factors that correlate with positive or negative biopsy results.

Method: Retrospective chart review of adults (18–89 years) who received LSGB by an otolaryngologist in an outpatient setting between 2010 and 2020 for the diagnosis of SS was performed. LSGB results, serology, demographics, and changes in medical treatment based on biopsy results were obtained. Chi-square test was used to identify statistically significant variables that correlate with biopsy results.

Results: A total of 55 patients underwent LSGB for the diagnosis of SS between 2010 and 2020. Sixteen (29.1%) biopsies were positive, 33 (60%) negative, and 6 (10.9%) indeterminate. Polyarthritis was present in 15 (93.7%) patients with positive biopsies, compared with 12 (36.4%) in those with negative biopsies ($P < .001$). Neuropathy was present in 8 (50%) patients with positive biopsies, compared with 7 (21.2%) in those with negative biopsies ($P = .04$). Hydroxychloroquine was started in 7 (43.75%) patients with positive biopsies, 4 (66.6%) patients with indeterminate biopsies, and 3 (9.1%) patients with negative biopsies.

Conclusion: As LSGB is being performed more frequently at our institution, providers should reconsider its role in the management of suspected SS with isolated sicca symptoms. In these cases, biopsies are likely negative, and medical management remains unchanged. Nearly all patients with positive biopsies presented with systemic symptoms, the most common being polyarthritis followed by neuropathy. A positive biopsy changed treatment only when significant systemic symptoms were present. Management was not changed for sicca symptoms alone regardless of biopsy results. Patients with indeterminate biopsies were often started on hydroxychloroquine for arthralgia, regardless of serology. Positivity of SSA, SSB, or other autoimmune serologic markers did not correlate with biopsy results.

Multi-institutional Study of Resident Intraoperative Experiences for Key Indicator Procedures
Jenny X. Chen (Presenter); Elliott D. Kozin, MD; Stacey Gray, MD

Introduction: In the era of work-hour restrictions, there is growing concern that otolaryngology residents may not achieve meaningful surgical autonomy during training to ensure competency. Beyond case minimum requirements for 14 key indicator procedures (KIPs) outlined by the Accreditation Council for Graduate Medical Education, surgical experiences across programs are not well characterized.

Method: Data were gathered prospectively from 5 academic centers from December 2019 to December 2020 using the smartphone application “System for Improving and Measuring Procedural Learning” (SIMPL). After each surgery, residents and faculty were asked to rate trainee autonomy on a 4-level Zwisch scale and performance on a 5-level modified Dreyfus scale.

Results: A total of 2984 evaluations were logged by 92 residents and 78 attendings. Attending ratings of autonomy and performance increased with training level ($P < .001$). Self-assessments of autonomy and performance were lower than paired attending assessments ($P < .001$). Among attending evaluations of KIPs performed by senior residents (PGY4 or 5), 55% of cases were performed with meaningful autonomy (“passive help” or “supervision only”). Similarly, 55% of cases were rated “practice ready” performance or better. Senior residents had meaningful autonomy for ≥50% of cases for most KIPs with the exception of flaps and grafts (40%), pediatric/adult airway (39%), and ossicular chain surgery (33%). Similarly, senior residents received “practice ready” or better performance ratings for ≥50% of cases across all KIPs other than ossicular chain surgery (33%).

Conclusion: In this multicenter study, surgical autonomy and performance varied across otolaryngology KIPs. The development of nationwide benchmarks will help programs and residents set educational goals.

Otolaryngology Consultations for COVID-19: Determining Occupational Exposure and Inpatient Interventions
Brady J. Anderson (Presenter); Lucy X. Liu; Kevin Chow; Kunal R. Shetty, MD, MA; Jumah G. Ahmad, MD; Amber Luong, MD, PhD

Introduction: The novel coronavirus SARS-CoV-2 has ravaged the United States and transformed the way medical care
is delivered. As specialists in upper airway anatomy, otolaryn-
gology (ENT) services may be called upon to manage various
head-and-neck complaints for patients with COVID-19. While
ear, nose, and throat (ENT) consults may benefit critically ill
patients, they also expose physicians to the transmission of
COVID-19. We sought to identify the reasons for ENT inter-
tervention and examine trends in testing through the pandemic.

Method: Records for all ENT consults from May 1 to
September 29, 2020, were retrospectively reviewed. Demographic
information, admission diagnoses, length of stay, COVID sta-
tus, and ENT interventions were recorded. Univariate analysis
was performed.

Results: Of 1343 distinct consults, 965 (72%) were tested
for COVID-19, with 62 (4.6%) positive. In May 200 (70%) of
287 consults were tested with 2 (0.7%) positive, while in September, 251 (78.5%) of 320 consults were tested with 22
(6.9%) positive. The most common ENT consultation for
COVID-positive patients was nasal and oropharyngeal bleed-
ing (n = 19, 30.6%), followed by facial trauma (n = 15, 24.2%).
Other reasons included respiratory distress, tracheostomy, and
foreign body (retained COVID swab). Of 96 interventions for
patients with COVID-19, 49 (51%) were for management of
bleeding, 24 (25%) were for upper airway evaluation (UAE),
and 8 (8.3%) were for tracheostomy or trach management.

Conclusion: Although patients with COVID-19 necessitated
various otolaryngologic interventions, management of bleed-
ing was the most common complaint, which may be associat-
ed with therapeutic anticoagulation as well as coagulopathy
from the disease process. Bleeding control was followed by
UAE and trach management, 2 aerosol-generating procedures
that may increase the risk of COVID transmission. The pro-
portion of consults tested and confirmed positive for COVID-
19 at our institution increased from May to September,
possibly assisting otolaryngologists to take appropriate pre-
ventive precautions.

Patient Reported Outcomes From Elective
Surgery Delays due to COVID-19

Katherine R. Keefe, MD (Presenter); Brandon Hiatt;
Jackson King; Brennan Blight; Jeremy Meier

Introduction: Constraints used by the COVID-19 pandemic
shifted clinical equipoise for a period of time by creating situ-
ations where surgery was temporarily not a choice. In this
study, we conducted patient interviews to understand how
limited access during the pandemic affected patient outcomes
and decision making.

Method: Within the 24-hospital Intermountain health care
system, we examined patients scheduled for 1 of the 5 most
common elective otolaryngology procedures: adenotonsilec-
tomy, tympanostomy tube placement, septrhinoplasty and
turbinate reduction, endoscopic sinus surgery, and thyroidec-
tomy between March 14, 2020, and May 31, 2020, whose
operation was postponed but not rescheduled as of September
15, 2020. We then conducted semistructured interviews with
these patients or caregivers to assess patient experience and
consequences of surgical delays. Interview transcripts were
then analyzed for key themes.

Results: From March 14, 2020, to May 31, 2020, otolaryn-
gology procedure volume decreased by 74.3% compared with
2019 (3823 vs 967), and volumes for all of 2020 were 28.6%
lower than 2019 (17,260 vs 12,327). Of the 808 patients with
a scheduled operation that was postponed early in the pan-
demic, 288 patients (35%) had not yet rescheduled their
planned procedure. We contacted 40 of these patients. Of
those patients, 8 underwent their planned procedure with the
original surgeon. In the remaining 32 patients, 27.5% (11)
reported their condition improved or resolved completely and
no longer required surgery. However, 27.5% (11) reported
their health was negatively affected by delays. Patients also
cited pandemic-related concerns (22.5%), financial concerns
(15%), and other changes in life circumstances (15%) as keep-
ing them from rescheduling their operation.

Conclusion: We have identified instances of patient-reported
harm from untreated surgical problems related to postponed
surgery during the pandemic. However, we also found patients
who improved without undergoing their planned procedures,
which may inform opportunities of improved preoperative
shared decision making.

Residency Applicant Interviews Fail
to Predict Ultimate Otolaryngology
Performance

Jennifer Y. Lee, MD (Presenter); Jennifer Alyono;
Erika Shimahara; Yifei Ma; C. Kwang Sung; Anna Messner

Introduction: The otolaryngology/head and neck surgery
(OHNS) residency application process aims to identify those
applicants who are most likely to become competent and suc-
cessful otolaryngologists. It is unclear which application and
interview features are most likely to correlate with residency
graduate performance.

Method: Survey study of OHNS residency program direc-
tors (PDs) for 125 matched applicants who interviewed at
Stanford from 2012 to 2015. Each PD ranked the graduated
residents into the top, middle, or bottom third of all trainees
who previously completed the program in 7 areas including
overall performance, communication skills, technical skills,
medical decision making, empathy, and ability to be a team
player. Results were analyzed using a cumulative logit model.

Results: A total of 125 matched applicants representing 45
medical schools were included. Of the surveys, 100 of 125
(80%) were completed by the PDs. Four surveys for trainees
who left residency were excluded. PDs rated 48.2% of appli-
cants in the top one-third of all trainees. Medical decision
making had the highest correlation with overall performance,
with a partial correlation coefficient of 0.74. Older applicant
age reduced the odds of receiving a higher overall perform-
ance score (odds ratio 0.67 [CI, 0.59-0.76]; P < .001).
Gender, number of publications, United States Medical
Licensing Examination Step 1 score, rank on traditional (non-
standardized) or standardized multiple mini interviews (MMI),
attendance at a top 25 medical school, and having additional degrees were not predictive of overall performance.

Conclusion: Although ideally the residency application process would identify those residents most likely to become competent OHNS physicians, this study found no application features other than younger applicant age that correlated with a better PD evaluation postgraduation. Neither the traditional interview nor the MMI interview process correlated with graduate performance.

Side Effects of Electronic Cigarettes in Otolaryngology: Scoping Review
Ameen Amanian, MD (Presenter); Jobanit Phulka; Amanda Hu, MD, FRCSC

Introduction: Electronic cigarettes (e-cigarettes) are nicotine-delivery systems with increasing popularity; however, their effects on the upper aerodigestive tract are largely unknown. The objective of this study was to examine the unintended otolaryngology-related side effects associated with any level of e-cigarette use.

Method: The Preferred Reporting Items for Systematic Reviews and Meta-analysis extension for Scoping Reviews (PRISMA-ScR) protocol was used to conduct a scoping review of MEDLINE, EMBASE, CINAHL, WEB OF SCIENCE, and CENTRAL databases (PROSPERO: CRD 42020177790). The search strategy contained MeSH terms developed with a librarian. English studies from inception through May 1, 2020, with a sample size >5 were included. In vitro, animal, and studies on the lower respiratory tract were excluded. The main outcome was defined as otolaryngology-related side effects following e-cigarette use. Oxford Centre for Evidence-Based Medicine Levels of Evidence was used to determine the quality of the studies. Study selection was independently performed by 2 authors; discrepancies were resolved by the senior author.

Results: From the 1788 articles that were initially identified, 32 studies were included. The most common unintended side effect associated with e-cigarette use was throat irritation (n = 16), cough (n = 16), mouth irritation (n = 11), and oral mucosal lesions (n = 8). Two studies investigated the pediatric population. Two studies reported on negative voice outcomes with e-cigarette use. A large proportion of participants also reported conventional tobacco use in addition to e-cigarette. Quality of the literature was level 2 to 4. Given the significant heterogeneity in the studies, a meta-analysis could not be performed.

Conclusion: E-cigarettes are gaining increasing popularity within the adult and youth population. The most commonly reported side effects were throat and mouth irritation, followed by cough. The long-term impact of e-cigarette on the upper aerodigestive tract is not known given the recent emergence of this technology. Future studies are warranted to determine the safety profile of e-cigarette.

Symptoms and Blood Character in COVID-19
Mohammed A. Gomaa, MD (Presenter); Omnia Abdel Aal; Ahmed Abdel Rahman; Tawfik El Kholy; Khalf Hamid

Introduction: People with COVID-19 have had a wide range of symptoms, ranging from mild symptoms to severe illness. Symptoms may appear 2 to 14 days after exposure to the virus. COVID-19 is accompanied by specific changes in the circulating blood cells that are analyzed by a full blood count. The objective of this study is to evaluate symptoms and ratios between different blood cell in patients with COVID-19.

Method: The study was done between June 2020 and December 2020 in the outpatient clinic of Minia University Hospital (tertiary hospital). A total of 33 patients with COVID-19 and 33 controls were selected randomly from patients attending the otolaryngology (ORL) outpatient clinic. Both groups were matched in age and gender. Both groups were subjected to ORL and systematic examination; a blood sample was taken from each subject for complete blood count and C-reactive protein testing. We evaluated the white blood cell/ red blood cells ratio, neutrophils/lymphocyte ratio, platelets/ lymphocytes ratio, and lymphocyte/monocyte ratio. Computed tomography (CT) of the chest was also performed in all patients to assess chest condition.

Results: Our data showed that anosmia was present in 55% of cases, burning sensation of the nose in 63.6%, nasal obstruction in 9%, fever in 57.6%, cough in 55.5%, burning of the throat in 45.5%, diarrhea in 9%, general fatigue in 75.8%, dyspnea in 51.6%, and elevated C-reactive protein in 66.7%. With regard to blood ratios, there was a negative correlation between study and control groups in all studied ratios. In all cases of anosmia and with other COVID-19 symptoms (excluding cases with cough), CT findings revealed inflammation of the lung (ground-glass appearance).

Conclusion: COVID-19 infection results in otorhinolaryngological symptoms in variable numbers of patients and burning sensation of the nose is the most frequent symptom. Blood ratios were negatively correlated with the control group. CT chest is needed in cases without cough to avoid severe chest symptoms.

Telemedicine in the Management of Postoperative Tonsillectomy and Adenoidectomy Care
Ryan M. Hendrick, MD, MBA (Presenter); Marc Katz, PA-C; Gillian Murdock; Mac Johnson; Willard C. Harrill, MD

Introduction: In an era of health care discussion of enhancing value-driven care using clinical pathways, telemedicine provides an opportunity that allows the patient and surgeon to use a postoperative virtual visit platform for routine postoperative tonsil care. We examine our practice experience with the utilization of a postoperative telemedicine clinical pathway in the surgical management of uncomplicated tonsil disease and discuss the implications for the application of telemedicine in otolaryngology.

Method: This is a retrospective chart review of a 7-physician private practice experience using a telemedicine clinical pathway for the management of routine postoperative tonsillectomy care during the 12-month period analyzed. Institutional review
Tolerance of Nasal and Oral Povidone-Iodine Antisepsis Amid COVID-19 Pandemic

Samantha Frank, MD (Presenter); Bishoy Ibrahim; Ruby Feng; Avinash Bidra, DDS, MS; Belachew Tessema, MD; Todd Falcone, MD

Introduction: Because of the high risk to the otolaryngology and dental communities during the COVID-19 pandemic, protocols involving topical antisepsis of the nasal and oral cavities were developed for use. Studies have demonstrated efficacy of low-dose povidone-iodine (PVP-I) to inactivate SARS-CoV-2 in 15 seconds as well as safety for use in the nasal and oral cavities. We evaluated patient tolerability of this solution when used in the outpatient office setting prior to nasal and oral procedures.

Method: A prospective study was conducted. Data were collected between October 2020 and January 2021. Via cotton pledgets, 0.5% PVP-I was applied to the nasal cavities of patients undergoing transnasal procedures in the otolaryngology office. Dental patients rinsed with 0.5% PVP-I prior to oral procedures.

Results: There appears to be no difference in bleeding or complication rates in patients managed with postoperative in-person visits vs those utilizing a telemedicine protocol. There also appears to be substantial cost and time savings to patients enrolled in the telemedicine clinical pathway.

Conclusion: The use of a simple teledentistry protocol for the routine management of postoperative tonsillec tomy care in a private practice model appears to be a viable, safe, and value-driven model of care.

Tracheostomy Outcomes in COVID-19 Patients at a New York City Hospital

Rahul K. Sharma (Presenter); Maheer R. Grewal; Sallie M. Long, MD; Brendon DiDonna, PA-C; Joshua Sturm, MD, PhD; Scott H. Troob, MD

Introduction: Tracheostomies have been performed in patients with prolonged intubation due to COVID-19, but the optimal timing, patient selection, and long-term outcomes largely remain unknown.

Method: A prospectively collected database of patients with COVID-19 undergoing open tracheostomy at a major medical center in New York City between March 2020 and April 2020 was reviewed. Primary endpoints were weaning from the ventilator, liberation to decannulation. Secondary endpoints included both immediate and long-term complication rates as well as intensive care unit and hospital discharge.

Results: In total, 61 patients underwent tracheostomy. There were 38 men (62.3%) and 23 women (37.7%) with an average age of 62 years (SD 13.7; range 23–91 years). Patients were intubated for a median time of 26 days prior to tracheostomy (interquartile range [IQR] 23–30 days). The median time to weaning from ventilatory support after tracheostomy was 18 days (IQR 10–27 days). Of those sedated at the time of tracheostomy, the median time to discontinuation of sedation was 5 days (IQR 3–9 days). Of patients who survived, 35 patients (60.3%) were decannulated. Of those decannulated (n = 33) before discharge, the median time to decannulation was 36 days following tracheostomy (IQR 27–48 days). Time from ventilator liberation to decannulation was 14 days (IQR 7–18 days). Fourteen patients (23.0%) had minor bleeding managed with packing. Two patients (3.3%) had bleeding requiring neck exploration. The all-use mortality rate was 9.4%. No patients died of procedural uses. No attending surgeons contracted COVID-19.

Conclusion: Open tracheostomies were successfully and safely performed at our institution in the peak of the COVID-19 pandemic. Most patients were successfully weaned from the ventilator and sedation. Approximately 60% of patients were decannulated prior to hospital discharge.
Trans Orbital Neuroendoscopic Surgery: Surgical Nuances for Beginners

Yash Mittal, MBBS (Presenter); Pradeep Pradhan; Pradipita Parida; Vinusree K; Aswathi KV; Chappity Preetam, MS, DNB, MNAMS

Introduction: The pathologies in the orbit requiring surgical intervention have traditionally been accessed externally or through transnasal endoscopic approaches for extracranial lesions. A relatively newer technique, trans orbital neuroendoscopic surgery (TONES), allows access to the orbital as well as intracranial pathologies.

Method: We present our case series of 5 patients treated with TONES for superomedial and inferomedial quadrant lesions in a tertiary care setting over the past 3 years. The age range was 2.8 to 63 years. The etiologies were orbital optic nerve meningioma (n = 1), optic nerve hamartoma (n = 1), rhabdomyosarcoma of orbit (n = 1), orbital lymphoid hyperplasia (n = 1), and intracranial dermoid cyst (n = 1). The clinical findings, treatment, and postintervention follow-up data were analyzed.

Results: All 5 patients had successful outcomes. Using a “H”-shaped periorbital incision helped in elevating the periorbital flaps and made repair of the defect with fascia easier. The posterior to anterior approach was helpful in identifying the vital structures. The superomedial compartment was technologically demanding and needed extensive dissection with identification of 3 muscles (inferior rectus, medial rectus, and superior oblique). In the patient with optic nerve meningioma, fenestration of the meningioma was performed with preservation of residual vision. Partial debulking of lymphoid tissue was done in the case of benign lymphoid hyperplasia, and the patient was initiated on high-dose steroids. The patient was kept on compulsory 5-year follow-up. Postoperatively, 1 patient developed enophthalmos with temporary diplopia. Ecchymosis was noted in a pediatric case operated for intracranial pleomorphic variant of rhabdomyosarcoma.

Conclusion: Our experience indicates that orbital pathologies can be managed effectively with TONES with minimal complications. Use of neuronavigation is essential to avoid complications. Adequate experience and skill are required for using this technique.

Utility of Point-of-Care COVID-19 Testing in an Outpatient Otolaryngology Clinic

Meera Ganesh (Presenter); Meron Brawley, MD; Ashoke Khanwalkar, MD; John Mynka; David Conley, MD; Bruce Tan, MD

Introduction: We aimed to evaluate the utility of point-of-care COVID-19 testing for identifying infected patients in an otolaryngology practice, given the potential for overlap in presenting symptoms.

Method: Retrospective review of 947 patients who tested using the Abbott ID Now point-of-care SARS-CoV-2 nucleic acid test (NAT) in an otolaryngology clinic from July to November 2020 was performed. Tests were characterized by provider-specified indication (symptomatic, preprocedural, and universal), subspecialty, provider type, and contemporaneous regional COVID positivity rates. Positive tests were further classified as true positives (TP) and false positives (FP) based on repeat polymerase chain reaction testing when available, and intergroup positivity rates were compared using the Fisher exact test. The likelihood of a FP result within 48 hours of a TP result was also evaluated to assess for batch contamination.

Results: We performed 947 SARS-CoV-2 NATs, yielding 9 TPs (0.95%) and 5 FPs (0.53%) results. Of these, 158 (5 TP, 2 FP) were for symptomatic patients, 303 (2 TP, 1 FP) were for preprocedural, and 486 (2 TP, 2 FP) for universal testing indications. The TP rates were significantly different by testing indication, with higher rates among symptomatic patients ($P = 0.012$; symptomatic vs universal odds ratio [OR] = 7.877; $95\%$ CI, 1.274–83.694; symptomatic vs preprocedural OR = 4.900; $95\%$ CI, 0.791–32.001). TP rates were also significantly different by subspecialty ($P = 0.011$), with significant intersubspecialty differences driven by higher rates in laryngology. TP rates were significantly higher among PA encounters than those with physicians ($P = 0.0005$; OR = 13.1442; $95\%$ CI, 2.7697–67.7222). TP rates were not significantly different during periods of local outbreak, defined using an Illinois Department of Public Health threshold of 12% test positivity rate ($P = 0.660$). FP rates were not significantly higher if performed within a 48-hour window of a TP test ($P = 0.192$).

Conclusion: Point-of-care COVID-19 NAT in an outpatient otolaryngology clinic identified a low (<1%) rate of TP with most cases being clinically suspected. Laryngology patients and patients acutely seeing a PA may have higher positivity rates.

Vestibular Function in Patients With Persistent Postural-Perceptual Dizziness

Mineko Oka (Presenter); Chisato Fujimoto; Kentaro Ichijo; Tatsuya Yamasoba

Introduction: Persistent postural-perceptual dizziness (PPPD) is a recently defined syndrome that presents long-lasting sense of dizziness. PPPD is precipitated by preceding conditions that use balance disorder. To gain a better understanding of this novel syndrome, we have evaluated the vestibular function in patients with PPPD and investigated the association between the vestibular function and the preceding conditions.

Method: A total of 31 patients (7 males and 24 females) diagnosed with PPPD from 2017 to 2020 at our institution were enrolled in the study. Vestibular functions were evaluated by the calorid test and cervical- and ocular-vestibular evoked myogenic potential (cVEMP and oVEMP). Patients were categorized into the vestibular and nonvestibular disease group, according to the type of preceding condition that cause balance disorder. The frequency of abnormal findings was compared between the 2 groups for the calorid test, cVEMP, and oVEMP, respectively.

Results: Regarding the type of preceding condition, 18 patients had vestibular disease and 13 patients had nonvestibular disease. The diagnoses of vestibular disease in the 18 patients were benign paroxysmal positional vertigo (n = 5),
vestibular neuritis (n = 4), and others (n = 9). Patients with preceding vestibular diseases presented a higher rate of abnormal findings in the caloric test results compared with those with nonvestibular diseases (61.1% and 7.7%, respectively, P < .001). Although an increased rate of abnormal findings was observed with eVEMP and oVEMP for the vestibular disease group compared with the nonvestibular disease group, the differences were insignificant.

Conclusion: PPPD patients with preceding vestibular disease presented a significantly higher rate of abnormal findings in the caloric test. Although disequilibrium used by PPPD cannot be fully explained by preceding condition that use balance disorders, our findings indicate the involvement of protracted vestibular dysfunction as a result of preceding vestibular disease.

Endocrine Surgery

Association of Insurance Status With Survival in Papillary Thyroid Carcinoma

Yashwant Chillakuru (Presenter); Timothy Shim; Christina Darwish; Daniel Benito; Collin F. Mulhy; Ashkan Monfared

Introduction: This study was designed to determine whether insurance status affects treatment access and overall survival in patients with late-stage papillary thyroid cancer (PTC).

Method: Data on demographics, insurance status, treatment access, and survival for patients with stage III and IV PTC in the National Cancer Database from 2004 to 2015 were examined. Multivariate Cox regression was used to examine overall survival, and multivariate logistic and linear regressions were used to analyze the association of insurance status with treatment access and time to treatment.

Results: Of the 30,270 patients with late-stage PTC, 89.1% had private insurance, 7.1% had Medicaid, and 3.8% were uninsured. When controlling for stage and demographic factors, private insurance was associated with increased overall survival (adjusted hazard ratio [aHR], 0.68; P < .001) compared with uninsured patients, whereas Medicaid was associated with worse overall survival (aHR, 1.61; P < .001). Patients with private insurance were more likely to receive multimodal therapy compared with surgery alone (odds ratio, 1.22, P < .001). Private insurance and Medicaid patients received surgery 45.1% (P < .001) and 43.6% (P = .032) sooner, respectively, than uninsured patients. Private insurance patients received radioisotope 17.1% and thyroid-stimulating hormone suppression therapy 29.7% sooner than uninsured patients (P < .001).

Conclusion: This study demonstrates reduced access to treatment and worse overall survival among both Medicaid and uninsured patients with advanced PTC compared with private insurance. In fact, patients with Medicaid demonstrated a decreased overall survival compared with uninsured patients. Medicaid, despite providing insurance to the low-income population, may not adequately reduce health care inequity in patients with late-stage PTC.

Clinical Characteristics Among Primary Hyperparathyroidism Patients by Biochemical Profile

David K. Lerner, MD (Presenter); Ameya Jategaonkar; Christine Barron; Kimia Ziadkhani; Samuel Trotman; Eric Genden

Introduction: Primary hyperparathyroidism is a common endocrine disorder characterized by hypercalcemia with elevated or inappropriately normal parathyroid hormones (PTH) levels. The implications of an inappropriately normal PTH are not clear.

Method: A retrospective review of all parathyroidectomy patients performed by a single surgeon at a tertiary academic medical center from November 2007 to November 2016 was performed. Patients were divided into those with elevated or normal PTH levels. Comparisons were made between groups using unpaired t tests for continuous variables and Fisher exact test for categorical variables. Postoperative surgical success was defined as normalization in serum calcium within 3 months postoperatively.

Results: Of the patients, 179 with hypercalcemia and elevated PTH (group 1) were identified compared with 76 with hypercalcemia and a normal PTH (group 2). There was no difference in age, gender, preoperative creatinine clearance, kidney stones, or constitutional complaints. Preoperative PTH in group 1 was 252.0 compared with 66.2 in group 2 (P = .026). There was no significant difference in postoperative surgical success between group 1 and group 2 (95.3% vs 95.2%, P = .88). Among patients with postoperative surgical success, the average intraoperative PTH decrease was significantly greater in group 1 than in group 2 (82% vs 60%, P = .001).

Conclusion: Our analysis did not find any preoperative clinical differences between group 1 and group 2. Surgical success was associated with significantly smaller intraoperative PTH decreases among patients with normal preoperative PTH levels, suggesting that surgical success in this population may be associated with a less dramatic PTH drop. Traditional criteria for intraoperative PTH monitoring may be overly stringent in this population.

Cost Comparison Between Open Lobectomy and RFA for Thyroid Nodules

Jonas R. Miller, MD (Presenter); Ved Tanavde; Ani Saraswathula; Christopher R. Razavi; Jonathon Russell

Introduction: There is an increasing array of treatment options for addressing clinically significant thyroid nodules. More recently, radiofrequency ablation of thyroid nodules (RFA) has been noted to decrease symptoms and improve cosmesis. While effective, the cost compared with alternatives has not been well elucidated. This study compares the