AMERICAN HEAD & NECK SOCIETY

2017 ANNUAL MEETING

During the Combined Otolaryngology Spring Meetings (COSM)

April 26 - 27, 2017

Manchester Grand Hyatt, San Diego, CA

THE RESEARCH AND
EDUCATION FOUNDATION
OF THE AMERICAN HEAD
AND NECK SOCIETY

FUNDING A CURE FOR HEAD AND NECK CANCER. IT'S MORE THAN DOING YOUR JOB.

The Research and Education Foundation is the non-profit foundation arm of the American Head and Neck Society. Our goal is to be the largest funder and supporter of head and neck cancer research and education grants. Presently the Foundation's focus lies in assuming the funding of all education and research grants offered through the AHNS. Once achieved, the Foundation will broaden our vision to expand the grant and research program, offering funding to innovate in the field of head and neck oncology.

To date, the Foundation has grown nearly entirely by the support of AHNS members and their great generosity. This is a true testament to the Foundation and your belief in our vision. While financial contributions are the most straight-forward way to give and will go directly to fund our mission, there are other unique ways to give including donations of honorarium, stock or planned gifts.

The Foundation also welcomes partnerships with individuals, industry and foundations who may share a common desire to end head and neck cancer. Please speak with Colleen Elkins to inquire more about such opportunities at colleen@ahns.info.

For more information about the Foundation, or to make your gift today, go to www.ahnsfoundation.info or please come and visit the Foundation's Centurion Club Lounge.

Sincerely,

Jatin P. Shah. MD
Foundation Chair

American Head and Neck Society
2017 Annual Meeting

During the Combined Otolaryngology Spring Meetings

MEETING PROGRAM

April 26 - 27, 2017
Manchester Grand Hyatt
San Diego, CA

The American Head & Neck Society (AHNS)
11300 W. Olympic Blvd., Suite 600
Los Angeles, CA 90064
Phone: (310) 437-0559
Fax: (310) 437-0585
www.ahns.info

The American Head & Neck Society is managed by
BSC Management, Inc.
Phone: (310) 437-0555
Fax: (310) 437-0585
E-Mail: info@bscmanage.com
www.bscmanage.com

Table of Contents

AHNS 2017 ANNUAL MEETING CORPORATE SUPPORTERS

Thanks to our Corporate Supporters!

The American Head & Neck Society gratefully acknowledges generous unrestricted educational grants in support of the AHNS 2017 Annual Meeting by the following companies:

AstraZeneca

Merck Sharp & Dohme Corp

Pfizer, Inc.

AHNS 2017 ANNUAL MEETING IN KIND SUPPORTERS

The American Head & Neck Society gratefully acknowledges the following companies for generous in-kind contributions for the educational activities noted below:

Thyroid, Parathyroid and Neck Ultrasound Course

GE Healthcare · Phillips Ultrasound

RGS Healthcare · Toshiba

General Information

The American Head and Neck Society's 2017 Annual Meeting

April 26 - 27, 2017

Manchester Grand Hyatt

1 Market Pl, San Diego, CA 92101

COSM Registration Hours

Palm Foyer, Second Floor, Seaport Tower

Tuesday, April 25	12:00 pm - 5:00 pm
Wednesday, April 26	6:30 am - 5:00 pm
Thursday, April 27	7:00 am - 5:00 pm
Friday, April 28	7:00 am - 5:00 pm
Saturday, April 29	7:00 am - 3:00 pm
Sunday, April 30	7:00 am - 10:00 am

COSM Exhibit Hall Hours

Grand Hall A-D

Thursday, April 27	9:00 am - 4:00 pm
Friday, April 28	9:00 am - 4:00 pm
Saturday, April 29	9:00 am - 4:00 pm

Speaker Ready Room Hours

La Jolla B

Speakers must check in at the Speaker Ready Room 4 hours before their presentation. **If your talk/session is taking place in Gaslamp ABC on Thursday, April 27th, please upload your PPT directly in the session room.**

Tuesday, May 17	4:00 pm - 8:00 pm
Wednesday, April 26	6:00 am - 6:00 pm
Thursday, April 27	6:00 am - 6:00 pm
Friday, April 28	6:00 am - 6:00 pm
Saturday, April 29	7:00 am - 6:00 pm
Sunday, April 30	7:00 am - 10:00 am

Spouse/Guest Hospitality Lounge Hours

Marina Room

Wednesday, April 26	8:00 am - 12 noon
Thursday, April 27	8:00 am - 12 noon
Friday, April 28	8:00 am - 12 noon
Saturday, April 29	8:00 am - 12 noon
Sunday, April 30	8:00 am - 10:00 am

Guest badges must be worn to enter the spouse/guest hospitality lounge.

AHNS Foundation/Centurion Club Lounge

Solana Beach A

Wednesday, April 26	7:45 am - 6:00 pm
Thursday, April 27	7:45 am - 6:00 pm

Official Language

The official language of the conference is English. Simultaneous translation will not be offered.

VISIBILITY DONORS

Thank you to our 2017 Visibility Donors!

The following companies have provided generous support for non-CME meeting activities:

Transoral Robotic Surgery Course

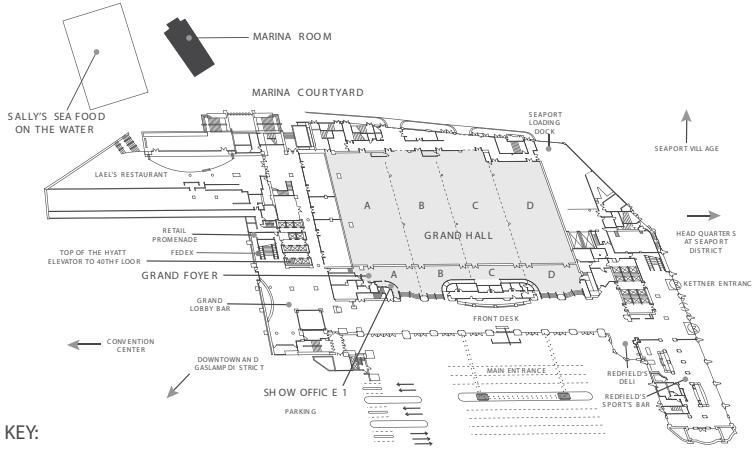
Intuitive Surgical · Medrobotics

Thyroid and Parathyroid Surgery Course for Residents and Fellows

Ethicon USA

Manchester Grand Hyatt Floor Plan

Lobby Level

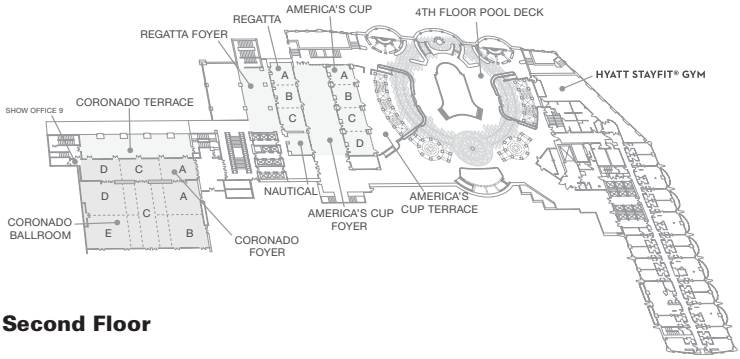


KEY:

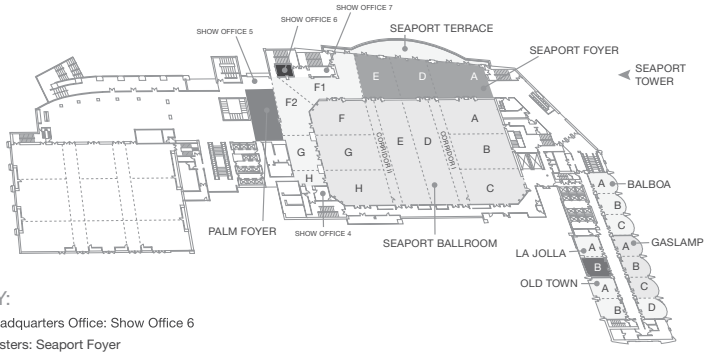
- ● Business Center: FedEx
- Exhibit Hall: Grand Hall A-D
- Posters: Grand Hall A-D and Grand Hall Foyer
- ■ Spouse/Guest Hospitality: Marina Room

Manchester Grand Hyatt Floor Plan

Fourth Floor



Second Floor



KEY:

- Headquarters Office: Show Office 6
- Posters: Seaport Foyer
- Registration: Palm Foyer
- Scientific Sessions: Seaport Ballroom, Gaslamp ABC, and Coronado AB
- Speaker Ready Room: La Jolla B

General Information

AHNS 2017 Annual Meeting Educational Objectives

At the conclusion of the activity, participants will be able to:

1. Integrate the management of aggressive thyroid malignancies and challenging presentations of hyperparathyroidism into their practice
2. Apply suggestions to improve outcomes in oral cavity cancer
3. Discuss how to evaluate and treat advanced non melanoma skin cancer
4. Apply the changes in treatment of head and neck cancer based on changes in the 8th edition of the AJCC Staging Manual
5. Differentiate between the current trends and practices in head and neck reconstruction in regards to quality and value
6. Interpret how value based head and neck cancer care affects patient quality, outcomes and economics of practice

AHNS 2017 CME Credit Claim Process

Please use the worksheet on page 40 to track the number of CME hours you attend for each activity. After the meeting, an email will be sent to attendees with a link to the on-line survey and claim form.

To Receive Your CME Credit:

AHNS has instituted a process for claiming CME credits and printing certificates. All attendees wishing to receive a CME certificate for activities attended at the AHNS 2017 Annual Meeting must first complete an on-line meeting evaluation form. Complete your meeting evaluation here: https://www.research.net/r/AHNS2017

Please allow 4-6 weeks for processing before your certificate arrives.

Attendance Certificates

Attendees in need of an attendance certificate instead of a certificate with your CME hours may ask for one at the AHNS Desk. Certificates of attendance will be electronic and emailed to participants upon request.

SAVE THE DATE!
AHNS FUTURE MEETING SCHEDULE

AHNS 2018 Annual Meeting
Held during the Combined Otolaryngology Spring Meetings (COSM)
April 18 - 22, 2018 • Gaylord National Resort and Convention Center • National Harbor, Maryland

AHNS 2019 Annual Meeting
Held during the Combined Otolaryngology Spring Meetings (COSM)
May 1 - 5, 2019 • JW Marriott Austin • Austin, Texas

AHNS 10th International Conference on Head and Neck Cancer
July 18 - 22, 2020 • Hyatt Regency Chicago • Chicago, Illinois

About the American Head and Neck Society

Mission Statement

The purpose of this society is to promote and advance the knowledge of prevention, diagnosis, treatment and rehabilitation of neoplasms and other diseases of the head and neck, to promote and advance research in diseases of the head and neck, and to promote and advance the highest professional and ethical standards.

Why Join the AHNS?

The American Head and Neck Society is an organization of physicians, scientists and allied health professionals dedicated to improving the understanding of Head and Neck Cancer and the care of patients afflicted with that disease. Membership is open to a wide variety of interested individuals in several categories that differ both in terms of responsibility and level of involvement in the society.

For more information about AHNS membership and to apply online, please visit www.ahns.info/member-central, call +1-310-437-0559, ext. 126

The Benefits of AHNS Membership:

- Interaction with colleagues dedicated to promoting and advancing the knowledge of prevention, diagnosis, treatment, and rehabilitation of neoplasms and other diseases of the head and neck
- Member rates on all meeting registration fees
- The honor of being a part of our worldwide network of surgeons, physicians and health care professionals dedicated to the prevention and treatment of head and neck cancer
- Opportunities to partake in educational offerings, including those planned by the society and those co-sponsored by the society
- Opportunity to post regional meetings and courses on the AHNS "Related Meetings" web page
- Access to the AHNS member contact information in the "Members Only" section of our web site
- Monthly e-newsletter with updates about the society and head & neck surgery
- Ability to apply for research grant awards offered yearly
- Opportunity to participate on committees and to vote at the annual business meeting

Qualifications for Active Fellowship:

Surgical applicants must be Diplomats of the American Board of Otolaryngology, Plastic Surgery, or Surgery or **OTHER EQUIVALENT CERTIFICATION BOARD.** Additionally, all applicants must be a Fellow of the American College of Surgeons, Fellow in the Royal College of Surgeons (FRCS) or equivalent non-surgical organization.

Qualifications for Associate Fellowship:

An applicant for Associate Fellowship must be a physician, dentist, or scientist who has special interest contributions in the field of neoplastic or traumatic diseases of the head and neck.

Qualifications for Candidate Fellowship:

Applicant shall be a trainee currently enrolled in an approved residency program in Otolaryngology, Plastic Surgery, or General Surgery or in a Fellowship program approved by the Advanced Training Council may become a Candidate Fellow.

Qualifications for Corresponding Fellowship:

An applicant for Corresponding Fellowship must be a physician who specializes in the treatment of head and neck cancer, who by their professional associations and publications, would appear in the judgment of Council to be qualified to treat head and neck cancer.

Corresponding Fellows must reside in a country other than the United States or Canada.

Deadline for Next Membership Review is October 31, 2017

American Head & Neck Society Statement of Professionalism and Ethics

The American Head and Neck Society is committed to promulgating and promoting professionalism and ethical behavior in its membership. As members, we value the trust placed in us by our patients, colleagues and society, and therefore willingly pledge to uphold the ethical and professional principles and virtues of medicine as outlined below.

We have a fundamental and sacred duty to our patients. Therefore, we will:

- Recognize that the welfare of our patients is the paramount priority
- Serve as advisors to our patients to help them navigate complex medical decisions
- Discuss the risks, benefits and alternatives of appropriate therapeutic options
- Be respectful of our patients' viewpoints and beliefs
- Support our patients physically, emotionally and spiritually
- Care for and support our patients at the end of life
- Offer support and care to our patients' families
- Strive to enhance and maximize our clinical, surgical and interpersonal competence
- Maintain a caring and respectful demeanor

We have a responsibility to our colleagues and teachers. Therefore, we will:

- Willingly acknowledge our skills and expertise to those wishing to learn
- Honor our teachers for devoting their time and energy on our behalf
- Assist our colleagues, technically, intellectually, emotionally and spiritually
- Respect our colleagues from other disciplines and practice multidisciplinary care
- Provide legal opinions based only on evidenced-based practice and standards of care
- Offer care without regard to gender, age, religion, sexual orientation, socioeconomic status or ethnicity

We also have an obligation to the faith entrusted in us by society. Therefore, we will:

- Perform self regulation by developing and adhering to professional, ethical and evidence-based practice standards
- Disclose and limit conflict of interest
- Practice medicine honestly, compassionately and confidentially
- Educate the public within the bounds of our expertise

AHNS President

Jeffrey N. Myers, MD, PhD

Dr. Jeffrey N. Myers is a head and neck surgeon, Full Professor, and translational scientist at the University of Texas MD Anderson Cancer Center, where he has been on faculty since 1997. He serves several important roles, including Deputy Chair for Academic Programs and Director of Research for the Department of Head and Neck Surgery, and currently holds the Alando J. Ballantyne Distinguished Chair of Head and Neck Surgery.

Dr. Myers has been a reviewer on several NIH study sections, has been a principle or co-principle investigator on numerous investigator-initiated and cooperative group trials, and has served in several prominent positions on national committees. He was named the President of the American Head and Neck Society in July 2016.

Dr. Myers received his medical (MD) and doctoral (PhD) degrees from the University of Pennsylvania School of Medicine and he then completed his residency training in Otolaryngology-Head and Neck Surgery at the University of Pittsburgh. He subsequently completed fellowship training in Head and Neck Surgical Oncology at the University of Texas MD Anderson Cancer Center in 1997, where he has been on the faculty ever since.

Dr. Myers leads a basic and translational research program that has been funded by several institutional, state and national grants. His primary research interests are in the role of p53 mutation and other genomic alterations in oral cancer progression, metastasis and response to treatment.

About the American Head and Neck Society

History of the Society

On May 13, 1998, The American Head and Neck Society (AHNS) became the single largest organization in North America for the advancement of research and education in head and neck oncology. The merger of two societies, the American Society for Head and Neck Surgery and the Society of Head and Neck Surgeons, formed the American Head and Neck Society.

The contributions made by the two societies forming the AHNS are significant in the history of surgery in the United States. Dr. Hayes Martin conceived the Society of Head and Neck Surgeons in 1954, a surgeon considered by many to be the "father of modern head and neck tumor surgery." The purpose of the society was to exchange and advance the scientific knowledge relevant to the surgery of head and neck tumors (exclusive of brain surgery) with an emphasis on cancer of the head and neck. Two years later, The American Society for Head and Neck Surgery was organized with the goal to "facilitate and advance knowledge relevant to surgical treatment of diseases of the head and neck, including reconstruction and rehabilitation; promote advancement of the highest professional and ethical standards as they pertain to the practice of major head and neck surgery; and to honor those who have made major contributions in the field of head and neck surgery, or have aided in its advancement".

The new Society remains dedicated to the common goals of its parental organizations.

2017 Program Chair

Anna Pou, MD

Dr. Anna Maria Pou is a native of New Orleans, graduating from LSU School of Medicine. She completed two years of General Surgery training at the University of Tennessee at Memphis, a residency in Otolaryngology at the University of Pittsburgh Medical Center, and subsequent fellowship in Head and Neck Surgery and Microvascular Reconstruction. Following her training, she joined the faculty in the Department of Otolaryngology-Head and Neck Surgery at the University of Texas Medical Branch in Galveston, where she was the Director, Division of Head and Neck Surgery from 1999 to 2004. Dr. Pou returned home in September, 2004 where she joined the faculty in the Department of Otolaryngology-Head and Neck Surgery at LSU Health Sciences Center where she was the residency Program Director from 2006 through 2013. She is currently Professor and Administrative Vice Chair and the Director of Quality and Patient Safety. She is a diplomat of the American Academy of Otolaryngology, a Fellow of the American College of Surgeons, and a member of the American Head and Neck Society and the Society of University Otolaryngologists. She has served on several committees in these organizations and as a senior Board Examiner for the American Board of Otolaryngology.

Dr. Pou is known as a staunch patient advocate and has worked tirelessly since Hurricane Katrina to educate physicians regarding disaster medicine, passing into Louisiana law, model disaster medicine reform.

2017 Program Co-Chair

David Goldenberg, MD

David Goldenberg, MD, FACS is a Head and Neck Surgical Oncologist. He was educated at the Ben Gurion University in Israel. He completed a residency in Otolaryngology-Head and Neck Surgery at Rambam Medical Center in Haifa, Israel and then went on to do a three year fellowship in Head and Neck Surgery and Oncology at the Johns Hopkins Hospital in Baltimore. Currently the Steven and Sharon Baron Professor of Surgery at the Penn State University College of Medicine, he also serves as the Chief of Otolaryngology-Head and Neck Surgery at the Penn State Health Hershey Medical Center.

Dr Goldenberg has been nationally recognized by Best doctors for cancer in the U.S. in Newsweek, Best Doctors in America, America's Top Doctors for Cancer as well a Top Doctors Top 1% in the nation by U.S. News and World Report.

David combines a busy surgical practice with teaching and research. His clinical practice includes head and neck cancers, thyroid cancers and disease, and transoral robotic surgery for head and neck cancer. Dr Goldenberg is one of the first surgeons in the USA utilizing the new Flex robotic system for the treatment of head and neck cancer.

His clinical research focus is on outcomes and etiology of the rise in incidence of thyroid cancer and his basic research lab and translational research focuses on thyroid cancer genomics in familial non medullary thyroid cancer as well as radiation induced thyroid cancer.

Dr Goldenberg is an accomplished and prolific author of over 190 articles, 30 book chapters and 6 books in the field of head and neck and thyroid oncology and surgery.

2017 Poster Chair

Neil Gross, MD

Dr. Gross is a dedicated surgeon and scientist with a passion for service, individualized cancer care and cancer research. His clinical interests include the management of all head and neck malignancies, with a particular focus on human papillomavirus (HPV)-associated cancers of the oropharynx and aggressive cutaneous malignancies. Dr. Gross is highly skilled in minimally invasive techniques, including transoral robotic surgery (TORS), and has spearheaded the TORS program since joining the faculty at MD Anderson Cancer Center. Dr. Gross is the Director of Clinical Research in the Department of Head and Neck surgery. His research is focused on the development and execution of surgeon-led clinical trials for patients with head and neck cancer.

Hayes Martin Lecturer

Mark K. Wax, MD

Dr Mark Wax is currently a professor of Otolaryngology and Oral Maxillo facial surgery at Oregon Health and Sciences University. He is the program director and head of Microvascular reconstruction. His primary interest has been in the reconstruction and rehabilitation of patients that have undergone treatment for head and Neck cancer. He has over 200 publications in the peer reviewed literature. He is a past president of the AHNS and is currently the coordinator for Meetings for the AAOHNSF.

Past Hayes Martin Lecturers

Ashok R. Shaha, MD	(2016)	Ronald H. Spiro, MD	(1993)
John A. Ridge, MD, PhD	(2015)	John M. Lore, MD	(1992)
Patrick J. Gullane, MD	(2014)	Ian Thomas Jackson, MD	(1991)
Jonas T. Johnson, MD	(2013)	Alando J. Ballantyne, MD	(1990)
Gregory T. Wolf, MD	(2012)	George A. Sisson, MD	(1989)
Randal S. Weber, MD	(2011)	M.J. Jurkiewicz, MD	(1988)
Adel El-Naggar, MD	(2010)	Elliot W. Strong, MD	(1987)
Charles W. Cummings, MD	(2009)	Donald P. Shedd, MD	(1986)
Waun Ki Hong, MD	(2008)	Alfred S. Ketcham, MD	(1985)
Jesus E. Medina, MD	(2007)	William A. Maddox, MD	(1984)
Keith S. Heller, MD	(2006)	John J. Conley, MD	(1983)
Richard K. Reznick, MD, MEd	(2005)	Milton Edgerton, MD	(1982)
Christopher J. O'Brien, MD	(2004)	Richard H. Jesse, MD	1981)
Michael Johns, MD	(2003)	Condict Moore, MD	(1980)
Eugene Myers, MD	(2002)	Edward F. Scanlon, MD	(1979)
William Wei, MS	(2001)	Harvey W. Baker, MD	(1978)
Robert M. Byers, MD	(2000)	Harry W. Southwick, MD	(1977)
Jean-Louis H. LeFebvre, MD	(1999)	Edgar L. Frazell, MD	(1976)
Jatin P. Shah, MD	(1998)	Charles C. Harrold, MD	(1975)
Blake Cady, MD	(1997)	Arthur G. James, MD	(1974)
Joseph N. Attie, MD	(1996)	Oliver H. Beahrs, MD	(1973)
Helmuth Goepfert, MD	(1995)	William S. MacComb, MD	(1972)
John G. Batsakis, MD	(1994)		

Hayes Martin Biography

Hayes Martin, MD

Hayes Martin was born in Dayton, a small town in north central Iowa. He attended the University of Iowa at Iowa Falls before being accepted to the medical school in 1913 on the same campus, finishing 4 years later in a class of 20.

World War I began in April 1917 while Hayes was in his final year of medical school. Many of his classmates at the medical school were in the Army ROTC units; however, Dr. Martin opted for the Navy, which he joined on the day America entered the war. He traveled to Europe on the USS Arkansas and was assigned to his permanent duty station at the U.S. Navy Air Station, La Trinite Sur Mer, France – a small seaside village on the southern coast of Brittany. The purpose of this base was antisubmarine warfare using blimps and kite balloons. Dr. Martin was made commanding officer of the air station for a brief period of time when the line officer in charge had become ill; it was a unique position for a medical officer in the Navy to take command during wartime.

After the war, Dr. Martin returned to the U.S and sought out an internship at the old Poly Clinic Hospital in New York City, which was temporarily made into a Veteran's Administration hospital. Part of his internship was spent at Bellevue in the fourth surgical division, where he felt he would have the best possible training in general surgery. The chief of the second division was John A. Hartwell, MD, the distinguished surgeon memorialized by the Fellow's Room in the library of the New York Academy of Medicine. Dr. Hartwell suggested that Dr. Martin go to Memorial Hospital to learn about cancer.

Dr. Martin received an internship at Memorial in the summer of 1922 and stayed on as a resident until 1923. He then had two years at the second surgical service at Bellevue, where he operated to his heart's content and got the surgical education he so strongly desired. Once he finished his residency, Dr. Martin returned to Memorial where he joined as clinical assistant surgeon on the staff.

Dr. Martin made the use of aspiration biopsy on all solid tumors popular throughout Memorial. Now, this procedure is done throughout the world. Dr. Martin co-authored the first report on the subject published in the Annals of Surgery. Numerous other articles followed, including Dr. Martin's two most famous publications, "Cancer of the Head and Neck," published in two issues of the Journal of the American Medical Association in 1948, and "Neck Dissection," appearing in Cancer in 1951. These two papers were so extensively requested that the American Cancer Society made reprints by the thousands available to those who requested them as many as 20 years after publication. Dr. Martin's bibliography encompasses more than 160 articles.

In 1934, Dr. Martin was appointed Chief of the Head and Neck Service at Memorial Hospital. It wasn't until 1940 that surgery began to take over as the treatment of choice for the majority of cancers of the head and neck. In that year, the beginnings of improved anesthesia permitted advances in surgery. Later, during World War II, antibiotics became available and surgery began to dominate much of head and neck cancer management. Dr. Martin wrote extensively on many subjects, most within the realm of head and neck surgery. His ideal was to be the complete head and neck surgeon and he treated a wide variety of head and neck abnormalities. His book, Surgery of the Head and Neck Tumors, was published in 1957.

Dr. Martin retired from active practice in 1957 at the age of 65. He performed his last operation at Memorial Hospital, assisted by Dr. Elliot Strong, in October 1959, but continued to see patients in his office until he passed away in 1977.

John J. Conley Lecturer

Johannes Fagan, MBChB, MMed, FCORL

Johan Fagan is the Leon Goldman Professor and Chairman of the Division of Otorhinolaryngology at the University of Cape Town, Cape Town, South Africa. Following ENT training at the University of Cape Town he completed fellowships at the University of Pittsburgh in Head & Neck/Cranial Base Surgery, and in Otology/Neurotology. He has written >150 peer reviewed articles and book chapters. He is President of the South African College of Otorhinolaryngology and serves on the executive committees of the Pan African Federation of Otolaryngologic Societies (PAFOS) and the International Federation of Otolaryngologic Societies (IFOS). He chairs the International Advisory Board of the American Academy of Otolaryngology, Head and Neck Surgery Foundation. A major interest of his has been to advance head and neck surgery in Africa and the Developing World. He established the Karl Storz Fellowship in Advanced Head and Neck Surgery at the University of Cape Town, and has trained 11 African Head and Neck surgeons. He maintains an educational website for ENT surgeons in the Developing World (http://www.entdev.uct.ac.za), and established and edits "The Open Access Atlas of Otolaryngology, Head & Neck Operative Surgery" and the "Open Access Guide to Audiology and Hearing Aids", chapters of which have been downloaded >1m times (http://www.entdev.uct.ac.za/guides/).

John J. Conley Biography

John J. Conley, MD

Although he looked and sounded like an English nobleman, Dr. John Conley was born in Carnegie, Pennsylvania, a small steel mill town just outside of Pittsburgh. He graduated from the University of Pittsburgh and later its school of medicine. He interned at Mercy Hospital in Pittsburgh. During that year, the nuns who ran the hospital suggested that Dr. Conley take a residency in cardiology and come back to Mercy as their cardiologist.

He went to Kings County Hospital in Brooklyn, a very busy city hospital with a huge patient population. Shortly after he began his training, he had an arrhythmia diagnosed as paroxysmal atrial tachycardia. Little was known about this benign condition at that time. Dr. Conley was told that cardiology was too stressful and that he should go into an easier, less-stressful field with better working hours, like ENT. He did an otolaryngology residency at Kings County Hospital. This was followed by four years of military service during World War II, which included experience in otolaryngology and plastic and reconstructive and maxillofacial surgery in the U.S. Army Medical Corps, both in this country and in the South Pacific theater. Exposure to the construction of war wounds would prove invaluable to him later on in applying these principles to reconstruction following ablative head and neck surgery.

Dr. Conley returned to New York City after the war. He became an assistant and then an associate of Dr. George T. Pack, a technically superb general oncologic surgeon at Memorial Hospital who taught Dr. Conley major ablative surgery of the head and neck. They worked day and night catching up with the backlog of surgery that was neglected during the war years. The combination of his training in otolaryngology, the exposure to ablative surgery, and the World War II experience in reconstructive surgery set the stage for Dr. Conley to evolve his unique approach to head and neck surgery.

Ironically, despite the admonition of the cardiologists about hard work, Dr. Conley did a prodigious amount of major head and neck reconstructive surgery. This proved to be more than ample to provide training to many fellows. His commitment to education is further attested to by the position he held for many years as Clinical Professor of Otolaryngology at the College of Physicians and Surgeons at Columbia University. He loved his appointment at Columbia and particularly his involvement in teaching the residents.

Dr. Conley's vast surgical experience, together with active research interests, led to the authorship of almost 300 contributions to the scientific literature, and eight books. As a result of his productivity and rhetorical eloquence, he was very much in demand as a speaker in this country and abroad. He gave many prestigious eponymous lectures in our field and received many awards for his work, including the Philip H. Hench Award as the Distinguished Alumnus of the University of Pittsburgh School of Medicine, and the DeRoaldes and Newcomb Awards of the American Laryngological Association.

Dr. Conley's contributions to the scientific literature, many technical innovations and surgical experience placed him in the position to receive many honors and important leadership positions, such as President of the American Academy of Otolaryngology and Ophthalmology, member of the Board of Governors of the American College of Surgeons, founding member of the Society of Head and Neck Surgeons, and founding member and first President of the American Society for Head and Neck Surgery. During those years, Dr. Conley used, to the great benefit of us all, his wisdom and diplomacy in carrying out such high-level responsibilities.

Past John J. Conley Lecturers

Robert S. Bell, CM, MSc, MD, FRCSC	(2016)	James D. Smith, MD	(2009)
Jonathan Irish, MD, MSc, FRCSC	(2015)	Carolyn Dresler, MD	(2008)
Antonio Fojo, MD, PhD	(2014)	Kenneth I. Shine, MD	(2007)
Patrick J. Gullane, MB, FRCSC, FRACS	(2013)	John Stone, MD, MACP	(2006)
		James F. Battey Jr., MD	(2005)
		David C. Leach, MD	(2004)
Julie A. Freischlag, MD	(2012)	Jonathan D. Moreno, MD	(2003)
Benjamin S. Carson, Sr., MD	(2011)	Rabbi David Saperstein	(2002)
Robert L. Comis, MD	(2010)	Edward Hughes, MD	(2001)

Keynote Lecturer

Francisco G. Cigarroa, MD

Dr. Francisco G. Cigarroa is a third generation physician. After graduating from J. W. Nixon High School in Laredo, he attended Yale University, where he graduated in 1979 with a bachelor's degree in biology. Dr. Cigarroa earned his medical degree in 1983 from The University of Texas Southwestern Medical Center at Dallas with honors. During his postgraduate training, he became chief resident in General Surgery at Massachusetts General Hospital in Boston and completed fellowships in both Pediatric Surgery and Transplantation Surgery at Johns Hopkins Hospital in Baltimore. In 2011, Dr. Cigarroa was awarded the Massachusetts General Hospital Trustees' Medal in recognition of his contributions to the advancement of the practice of medicine and patient care. He also was the recipient of the International Recognition Award by the Denton A. Cooley, M.D. Cardiovascular Society.

Upon completing his surgical training, Dr. Cigarroa joined the faculty of The University of Texas Health Science Center at San Antonio in 1995 where he served as director of pediatric surgery before serving as president of the institution from 2000-2009. As a Pediatric and Transplant Surgeon he established a multidisciplinary pediatric transplant program focused on kidney, liver and intestinal transplants with outstanding outcomes. In 2009, Dr. Cigarroa became the first Hispanic to be named chancellor of The University of Texas System. As chancellor, he oversaw one of the largest public systems of higher education in the nation, which consists of nine universities and six health institutions. He was also vice chairman for policy on the Board of Directors of The University of Texas Investment Management Company. As Chancellor, Dr. Cigarroa's leadership was critical in the establishment of the Dell Medical School at the University of Texas at Austin, The University of Texas Rio Grande Valley, a Medical School in South Texas as part of The University of Texas Rio Grande Valley, and enhancing engineering across the University of Texas System. His leadership was also critical in the legislation that allowed the University of Texas Rio Grande Valley to be eligible for Permanent University Funds as well as enhancing the stewardship of the University of Texas West Texas Lands.

Dr. Cigarroa is a member of several prestigious societies, including the American College of Surgery, the American Pediatric Surgical Association, The Association of Transplant Surgery, the Institute of Medicine, the American Board of Surgery and the American Academy of Arts and Sciences. He is also an honorary member of the National Academy of Science in Mexico. In 2003, President George W. Bush appointed him to serve on the President's Committee on the National Medal of Science. He was elected in 2010 to serve on the Yale Corporation, the university's governing board. He also served as the 2010 president of the Academy of Medicine, Engineering and Science of Texas. Dr. Cigarroa served on the National Research Council Committee on Research Universities and on the American Academy Commission on the Humanities and Social Sciences. In addition, President Barack Obama appointed Dr. Cigarroa to serve as a

commissioner on the White House Initiative on Educational Excellence for Hispanic Americans. In 2014, Dr. Cigarroa was appointed as a trustee of the Josiah Macy Jr. Foundation and the Ford Foundation.

In January 2015, Dr. Cigarroa completed his tenure as Chancellor of the University of Texas System and was named the Director of Pediatric Transplantation at the University of Texas Health Science Center at San Antonio. He holds the Ashbel Smith Professorship in Surgery from the University of Texas at Austin. Dr. Cigarroa is a Regent's Special Liaison to the University of Texas Rio Grande Valley and its Medical School. He is the recipient of the Carlos and Malú Alvarez Distinguished University Chair at the University of Texas Health Science Center at San Antonio.

Dr. Cigarroa and his wife, Graciela, an attorney, have two daughters, Maria Cristina and Barbara Carisa.

Jatin P. Shah Symposium & Biography

Professor Jatin P. Shah graduated from the Medical College of MS University in Baroda, India, and received his training in Surgical Oncology and Head and Neck Surgery at Memorial Sloan Kettering Cancer Center. He is Professor of Surgery, at the Weil Medical College of Cornell University, and Chief of the Head and Neck Service, Leader of the Head and Neck Disease Management Team, and holds The Elliott W. Strong Chair in Head and Neck Oncology at Memorial Sloan-Kettering Cancer Center in New York City.

Dr. Shah is a national and international leader in the field of head and neck surgery, having served as President of The New York Cancer Society, The New York Head and Neck Society, The Society of Head and Neck Surgeons, The North American Skull Base Society and the International Academy of Oral Oncology. He is Founder of The International Federation of Head and Neck Oncologic Societies, in 1986. He currently serves as Chairman of the AJCC task force on Head and Neck. He was Chairman of the Joint Council for advanced training in head and neck oncologic surgery in the USA. He was also Chairman of the 4th International Conference on Head and Neck Cancer in Toronto in 1996. He has served in varying capacities for The American Board of Surgery, and the American College of Surgeons.

Professor Shah has been the recipient of numerous awards from various parts of the world, and is the recipient of honorary fellowships from The Royal College of Surgeons of Edinburgh, London and Australia. He holds Honorary PhD, degrees from the Catholic University of Louvain, in Belgium and the University of Athens, in Greece. He is recipient of the Blokhin Gold medal, the highest Honor in Oncology in Russia. He has been elected as an honorary member of several head and neck societies in Europe, Asia, Australia, Africa and Latin America. He has been continuously listed in the "Best Doctors in America" directories for several years. He serves on the Editorial and Review Boards of 18 scientific journals and has published over 300 peerreviewed articles, 50 book chapters and 7 books. His textbook of Head and Neck Surgery and Oncology won First Prize from The British Medical Association and The Royal Society of Medicine and was awarded the George Davey Howells Prize from the University of London, for the best published book in otolaryngology in the preceding five years.

He is a much sought after speaker who has delivered over 1,000 scientific presentations including, 59 eponymous lectures and keynote addresses, and visiting professorships in the United States, Canada, United Kingdom, Scotland, Sweden, Belgium, Germany, Italy, Spain, Poland, Russia, Croatia, Turkey, Egypt, South Africa, India, China, Korea, Japan, Hong Kong, Taiwan, Singapore, Phillipines, Australia, Argentina, Brazil, Chile, Peru, Equador, Venezula, Panama, and Mexico.

In recognition of his outstanding contributions, and World Leadership in Head and Neck Surgery, Memorial Sloan Kettering Cancer Center, has established The "Jatin Shah Chair in Head and Neck Surgery and Oncology", The International Federation of Head and Neck Oncologic Societies has established "The Jatin Shah Lecture", at its world congresses, and the American Head and Neck Society has established the "Jatin Shah Symposium" at its annual meeting.

Jatin P. Shah Symposium: Aggressive Thyroid Malignancies: State of the Art Management

Thursday, April 27, 2017
11:00am - 12:00pm
Seaport ABC

A renowned panel of presenters will review the latest updates in the surgical management of a range of more challenging forms of thyroid cancer including aggressive and invasive differentiated thyroid cancer, Medullary and Anaplastic thyroid cancer.

Industry Satellite Symposiums

Tuesday, April 25 at 6:00 pm in Gaslamp A-D

Presented by MEDSCAPE, LLC

5:45 pm - 6:00 pm Registration, Dinner and Refreshments

6:00 pm - 7:15 pm Symposium

Title: ***Immune Mediated Treatment in Head and Neck Cancer: How Are New Therapies Transforming Care?***

1.25 of AMA PRA Category Credits

Invited speakers:

Barbara A. Burtness, MD
Professor of Medicine, Disease Aligned Research Team Leader, Head and Neck Cancers Program, Co-Director, Developmental Therapeutics Research Program, Yale University School of Medicine, New Haven, Connecticut

Robert I. Haddad, MD
Disease Center Leader, Head and Neck Oncology Program, Dana Farber Cancer Institute, Boston, Massachusetts

Supported by an independent educational grant from AstraZeneca Pharmaceuticals, LP

Wednesday, April 26 at 6:15 am in Seaport ABC

Presented by prIME Oncology

Title: ***Transforming Outcomes in Head and Neck Cancer: Immunotherapy Takes Center Stage***

This engaging symposium focuses on the contemporary management of advanced HNSCC with immunotherapy, including the rationale for targeting the immunesystem in HNSCC and concepts of immunotherapeutic approaches. Case-based management discussions provide considerations and guidance for the current use of immune checkpoint inhibition in the management of recurrent and metastatic HNSCC, including patient selection, potential biomarkers, evaluation of response, and treatment of unique immune-related adverse events. Approaches for how emerging immunotherapy strategies may be used in multidisciplinary care of HNSCC, along with patient video snippets, provide important information for practice application.

Invited speakers:

Chair –

Ezra Cohen, MD
University of California at San Diego, San Diego, California, United States

Faculty –

Robert Haddad, MD
Dana-Farber Cancer Institute, Boston, Massachusetts, United States

Andrew Sikora, MD, PhD
Baylor College of Medicine, Houston, Texas, United States

These activities are not accredited or organized by the AHNS.

Guest of Honor

Helmuth Goepfert, MD

Helmuth Goepfert was born in Chile. After completing 12 years of primary schooling at the German School in Santiago, he entered medical school at the Universidad de Chile, graduating in 1962 after a year of internship. He then completed 2 years of General Surgery residency in Valdivia, Chile, during which time his father, Juan Pablo Goepfert, a General Surgeon "of the old guard," had a significant influence on his training. His father's interest in cancer care was to become the guiding principle for the rest of Helmuth's professional career.

In 1964, Helmuth was awarded a two year Solid Tumor Chemotherapy Fellowship in the UCLA Department of Surgery, which allowed him not only to see and treat advanced solid tumors, but benefit from the teachings of William Longmire and his faculty in the department. Note that 1964 was the year ASCO was founded. Through the contacts of his immediate mentor, Donald Rochlin, Helmuth obtained a Fellowship in Cancer Chemotherapy at the UT MD Anderson Cancer Center from 1966 to 1968. During this time, Richard Jesse, a member of the Head and Neck Section, had a strong influence on his surgical training.

Helmuth then returned with his young family to Chile and worked in the National Cancer Hospital and the pediatric program at the Hospital Roberto Del Rio. These were so-called "part-time" appointments. With any spare time, he assisted senior surgeons to earn a living and attempted to recruit patients through private practice. During this time there was significant political unrest and when the socialistic government of Salvador Allende took power, Helmuth, his wife, and two children decided to emigrate.

Through contacts in Germany, Helmuth moved to Stuttgart and organized a new chemotherapy section within the Radiation Therapy Institute of the Katharinenhospital under the direction of Professor Werner Helriegel. He remained there from November 1970 until May 1971 when his immigrant visa to the United States was granted and he moved back to Houston since Dr. Jesse had a research position available. At the last minute, Bobby R. Alford, chairman of Otolaryngology at Baylor College of Medicine, had a vacancy in his program, and offered it to Helmuth on the word of Dr. Jesse's endorsement in July 1971. Following completion of 3 years of residency, Helmuth was appointed director of the newly created section of Otolaryngology in the Department of Surgery at the University of Texas School of Medicine in Houston with a part-time position as assistant professor in the Department of Head and Neck Surgery at MD Anderson. After Dr. Jesse's untimely death, he became chairman of the Department of Head and Neck Surgery in 1982, a position which he held until retirement from clinical practice in August 2003.

Helmuth participated in many clinical, research, and administrative endeavors with the institution during his tenure and was widely respected as a master surgeon, a champion of multidisciplinary oncology, and a visionary leader. This involvement and reputation extended well beyond MD Anderson. In 1990, Helmuth led and participated the efforts to combine the two head and neck societies, the American Society for Head and Neck Surgery and the Society of Head and Neck Surgeons. He was co-investigator and the surgical leader in the larynx preservation protocol

91-11. During the course of his career, Dr. Goepfert was a tireless champion for multidisciplinary cancer care. He was often at odds with colleagues around the world who felt that surgery should dominate the treatment armamentarium regardless of the cosmetic or functional cost to the patient. Today, multidisciplinary care with prospective treatment planning and consideration of functional outcomes is the standard of care for patients with head and neck cancer.

Under Dr. Goepfert's leadership of the Department of Head and Neck Surgery, basic science and clinical research sections were established and educational opportunities for young head and neck surgeons were expanded. He contributed to 232 peer-reviewed publications and 55 book chapters. He was the second editor-in-chief of Head and Neck from 1984 to 1993, during which time this journal developed into the premier publication in head and neck surgery.

Helmuth served on numerous editorial boards and international planning committees, and was a leader in the American societies of head and neck surgery, radiation oncology, and medical oncology. He was President of the American Society for Head and Neck Surgery form 1990-1991, delivered the 1995 Hayes Martin Lecture entitled "Training the head and neck surgeon-scientist," in which he stressed that "clinical training alone is not enough to forge the future." His many honors include presidential citations from the American Academy of Otolaryngology and the American Society for Head and Neck Surgeons. He has been visiting lecturer at numerous institutions around the world. His MD Anderson colleagues chose him for the 1994.

Distinguished Service Award

Dennis Kraus, MD

Dr. Dennis Kraus is the Director of the Center for Head and Neck Oncology within the New York Head & Neck Institute and the Northwell Health Cancer Institute. He is Chair of the Lenox Hill Hospital Cancer Committee, Member of the Cancer Oversight Committee for the Northwell Health System, Professor of Otolaryngology at Northwell Health Hofstra School of Medicine and a Member of the Admissions Committee for the Hofstra School of Medicine. Dennis has served in a number of administrative positions within the otolaryngology and head and neck surgery communities. In addition to currently serving as president, he has served in multiple roles within the AHNS, including program chair of the annual meeting and Secretary.

Dennis currently is a member of the Board of Governors for the American College of Surgeons and the Otolaryngology Advisory Council. He serves on the American Joint Commission of Cancer. He is the past president of the North American Skull Base Society, the New York Head and Neck Society and the New York Laryngological Society. Dennis is currently co-editor in chief of the Skull Base Journal and associate editor of Head and Neck Surgery. He is chair of the Subspecialty Advisory Council for the American Academy of Otolaryngology-Head and Neck Surgery and is past chair of the Head and Neck Educational committee and the Home Study Course.

His clinical interest focuses on all aspects of head and neck oncology and his research efforts have paralled his clinical initiatives. Dennis has particular expertise as it relates to minimally invasive thyroid surgery, robotic surgery of the head and neck and sentinel node biopsy for cutaneous malignancies. He has been a strong advocate for the use of minimally invasive surgery in the sinonasal region and skull base. Each of these developments has been associated with decreased morbidity with improved cosmetic and functional outcomes for patients with head and neck neoplasms. He has been fortunate to lecture across both the USA and around the world in a number of venues. On a personal level, Dennis is married to his wife of 29 years, Daryl, and they reside with all 3 of their adult children; Devon, Cameron and Collin, in New York City. He continues to enjoy golf, skiing and travel.

Past Distinguished Service Award Recipients

Jatin P. Shah, MD	1989	John A. Ridge, MD, PhD	2006
Stephan Ariyan, MD	1990	Ernest A. Weymuller, Jr., MD	2007
Ashok R. Shaha, MD	1991	Helmuth Goepfert, MD	2008
Elliot W. Strong, MD	1995	Keith S. Heller, MD	2009
John J. Coleman, III MD	1999	Mark K. Wax, MD	2010
David L. Larson, MD	1999	Randal S. Weber	2011
Harold J. Wanebo, MD	1999	Ashok R. Shaha, MD	2012
Jonas T. Johnson, MD	2001	Dennis H. Kraus, MD	2013
Helmuth Goepfert, MD	2003	Jesus E. Medina, MD	2014
Marc D. Coltrera, MD	2004	Carol R. Bradford, MD	2015
Wayne Koch, MD	2005	Ehab Hanna, MD	2016

Past Special Recognition Award Recipients

Paul B. Chyetien, MD	1984	Edgar L. Fazell, MD	1988
John M. Lore, Jr., MD	1985	Harvey W. Baker, MD	1989
William S. MacComb, MD	1986	Vahram Y. Bakamjian, MD	1991
Calvin T. Klopp, MD	1987	Jean-Louis Lefevbre, MD	1995

Presidential Citations

Mark Chambers, DMD, MS

Dr. Chambers is an oral oncologist and clinical research investigator with a focus on developing novel therapeutic approaches to the oral sequelae of cancer therapy. He is the Chairman of the Section of Oral Oncology, Department of Head and Neck Surgery (HNS), at The University of Texas MD Anderson Cancer Center. Dr. Chambers is a tenured Professor, Vice Chair of Compliance and Regulatory Affairs (HNS), and Director of the HNC-Core Research Program (HNS) with a secondary appointment in the Department of Radiation Oncology. Dr. Chambers serves as the Chairman of the Institutional Review Board 5 (IRB 5) and the Chairman of the External IRB Oversight Monitoring Committee.

Mitchell Frederick, MD

Dr. Mitchell Frederick is currently an Associate Professor in the Department of Otolaryngology at Baylor College of Medicine in Houston, Texas. He received a Ph.D. in Cancer Biology from the University of Texas Health Science in 1995, while in the laboratory of Dr. Elizabeth Grimm at the M.D. Anderson Cancer Center. Shortly after, Dr. Frederick joined the Department of Head and Neck Surgery at M.D. Anderson as a Research Associate, and worked with Gary Clayman to discover genes differentially expressed in head and neck cancers. Dr. Frederick co-discovered two novel genes, CXCL14 (BRAK) and Headpin, that are frequently downregulated in head and neck squamous cell carcinoma (HNSCC). He stayed on in the Department of Head and Neck Surgery at M.D. Anderson as an Instructor, Assistant Professor, and Associate Professor, where he continued an independent research career for 20 years. At M.D. Anderson, his major research focus was identifying and understanding molecular changes that drive the malignant behavior of HNSCCs, with the hopes of exploiting these changes to design more effective therapy. Dr. Frederick has utilized high throughput platforms to identify and examine alterations in, protein, mRNA and DNA in HNSCC.

While on sabbatical in 2007, Dr. Frederick trained at the George Mason University Center for Applied Proteomics, under the mentorships of Lance Liotta and Chip Petricoin, to perform the first phosphoproteomic characterization of primary HNSCCs. Back at M.D. Anderson Dr. Frederick, along with his colleague and longtime collaborator Dr. Jeffrey Myers, co-organized and co-led a team to perform the world's first comprehensive analysis of genomic alterations in HNSCC, publishing in Science and Cancer Discovery the catalogue of somatic mutations, changes in gene expression, genome-wide copy number changes and DNA methylation patterns frequently found in primary HNSCC. Among the novel findings from this pioneering work was the discovery that NOTCH1 is a tumor suppressor frequently mutated in HNSCC. Currently, Dr. Frederick's laboratory works to understand the mechanisms and consequence of NOTCH1 dysfunction in HNSCC. He is currently co-leading the NOTCH pathway working group for The Cancer Genome Atlas Project. Dr. Frederick's group was also the first to comprehensively

identify and publish the somatic mutations frequently found in aggressive cutaneous squamous cell carcinomas from the head and neck region. In collaboration with a team of Computational Biologists at Baylor College of Medicine, and Functional Genomic experts at M.D. Anderson, Dr. Frederick, along with Dr. Jeffrey Meyers, is also co-leading a multi-institute, multi-investigator UO1 project to translate genomic alterations into novel therapeutic targets in HNSCC through computational and functional approaches.

During his career, Dr. Frederick has mentored graduate students and personally trained more than a dozen postdocs and physician scientists in the laboratory. He has co-authored over 50 peer-reviewed papers, with many in the field of HNSCC. Dr. Frederick has been a past recipient of awards from the Thyroid Head and Neck Foundation, and from the Khalifa Scholar and Fellowship Program from the M.D. Anderson Institute for Personalized Cancer Therapy. In 2016, Dr. Frederick left M.D. Anderson to take a research position at Baylor College of Medicine, where he is expanding his research interests into the fields of cancer immunogenomics and metabologenomics, in the context of HNSCC.

Presidential Citations

Paul W. Gidley, MD

Dr. Gidley is a native of Houston, Texas. He attended Spring Hill College in Mobile, AL, majoring in Biology and graduating cum laude in 1986. He was elected Senior Class Orator, and he delivered the valedictory address at his class's graduation.

He returned to Houston and attained his medical degree at University of Texas Medical School at Houston in 1990. He was elected into membership in the Alpha Omega Alpha honor society.

He completed his otolaryngology-head and neck residency at University of Texas at Houston in 1995.

After completing his residency, he was hired as assistant professor of otolaryngology for the Department of Otolaryngology-Head and Neck Surgery at University of Texas Medical School at Houston.

In 1996, he undertook a neurotology fellowship at University of Iowa under Drs. Bruce Gantz and Jay Rubinstein. He returned to Houston in 1997 to resume his position as assistant professor at UT Houston Medical School for the next 6 years. During this time, he developed a consultancy relationship with UT MD Anderson Cancer Center for lateral skull base procedures.

He left UT Medical school for a short stint in private practice in Houston from 2003 to 2006. He was recruited to join the Department of Head and Neck Surgery at UT MD Anderson by Dr. Randal Weber in 2006 as an Associate Professor; he has a joint appointment in the department of Neurosurgery. Currently, he is the director of the Rotating Residency Program, and he oversees residents from 6 different programs as they rotate through the Head and Neck department. In 2012, he was promoted to Professor.

Dr. Gidley has held several offices in local and state medical societies including President of Texas Association of Otolaryngology, President of Houston Society of Otolaryngology, and President of Central City Branch of the Harris County Medical Society. He has been involved in several committees of the AAO-HNS, and he has served on the Task Force for New Materials and as a guest examiner for the American Board of Otolaryngology.

His clinical practice covers all aspects of otology-neurotology, but he specializes in temporal bone cancer and surgery for lateral and posterior fossa skull base tumors.

Presidential Citations

Jonathan Irish, MD, MSc, FRCSC

Dr. Irish graduated with his M.D. degree in 1984 from the University of Toronto. He completed residency training at UCLA and at the University of Toronto. He completed his Master's of Science degree in Molecular Biology at the Institute of Medical Science at the University of Toronto in 1991 where he studied the molecular biological characteristics of head and neck cancers. He completed the American Head and Neck Society Fellowship in Head and Neck Surgical Oncology in 1991 under Dr. Patrick Gullane and joined the staff of the Toronto General Hospital and Princess Margaret Cancer Centre in 1992. He is currently Professor of Otolaryngology-Head and Neck Surgery at the University of Toronto.

In 2000, Dr. Irish was appointed as the Chief of the Department of Surgical Oncology at the Princess Cancer Centre and completed his term after 16 years in 2016. Since 2004, Dr. Irish has been a major health policy advisor and responsible for access to care, quality improvement and health care funding for the Surgical Oncology Program at Cancer Care Ontario which oversees the delivery of cancer services for 13.5 million people in the Province of Ontario, Canada. In 2004, Dr. Irish became the Lead for Access to Care ("Wait Times") and Strategic Funding Initiatives for the Surgical Oncology Program at Cancer Care Ontario and is responsible for the Cancer Surgery Wait Times portfolio. He was the Provincial Clinical Lead for Access to Services and Wait Times for the Province of Ontario from 2008-2012. In 2008, Dr. Irish was appointed Provincial Head of the Surgical Oncology Program at Cancer Care Ontario. As the Provincial Head for Surgical Oncology, Dr Irish has provided provincial leadership and oversight linking volume funding to quality improvement. Many of the performance metrics associated with these initiatives are reported as part of the Cancer System Quality Index (http://www.csqi.on.ca/) and are on the CCO website (https://www.cancercare.on.ca/ocs/clinicalprogs/surgonc/).

As the Kevin and Sandra Sullivan Chair in Surgical Oncology at the University of Toronto he has led a multidisciplinary program in Guided Therapeutics at UHN and is currently leading the Guided Therapeutics Core and is Director of Clinical Faculty for the TECHNA Institute at the University Health Network.

Dr. Irish has over 300 peer review publications and over 30 book chapters and has over $5M in peer-review funding for his research

Jon is married to Dr. Rosemary Martino and are extremely proud of their 3 children Matthew (29), Brendan (27) and Elizabeth (24).

Presidential Citations

Merrill S. Kies, MD

Dr. Merrill Kies' professional life has been devoted to patient care. Graduating with an MD degree from the Loyola University Stritch School of Medicine in 1973, he trained in Internal Medicine at the Walter Reed General Hospital, in the Army Medical Corp, then as a fellow in medical oncology at the Brooke Army Medical Center of San Antonio. He worked further in the Army Medical Corp, as an attending physician, seeing a broad spectrum of patients with hematologic and oncologic illnesses. After this, in 1980, Dr. Kies accepted an assistant professor position at Northwestern University of Chicago. Over passing years, he worked with George Sisson and Bharat Mittal of Northwestern, and Everette Vokes of the University of Chicago, cultivating interest and experience in caring for patients with head and neck cancers. His efforts were in the study of medical therapy as a component of combined regimens for patients with locally advanced disease. Dr. Kies was named the Abby and John Friend Professor of Clinical Oncology in 1994. In 2000, he joined Waun Ki Hong and colleagues at the MD Anderson Center, to partner also with Surgery Chairs Helmuth Goepfert and Randal Weber, and Kian Ang of Radiation Oncology. To this day, he continue as a collaborating medical oncologist, in our large and leading Head and Neck Center, focusing on the care and treatment of patients with malignancies of the head and neck.

Jan Lewin, PhD

Dr. Jan S. Lewin received her Ph.D. from Michigan State University in 1994. She was the Director of Speech Pathology at the University of Michigan from 1985 until she joined the faculty at M. D. Anderson Cancer Center in 1995 as an Assistant Professor in the Department of Head and Neck Surgery, and was subsequently promoted to Professor in 2010. She is the Section Chief of Speech Pathology and Audiology. She is a well-known clinical authority on the restoration of speech and swallowing function in patients with head and neck cancer and remains an advocate for inclusion of speech pathologists and audiologists in the multidisciplinary evaluation and treatment of cancer patients. Under her direction, the Section of Speech Pathology and Audiology at M. D. Anderson Cancer Center is recognized as the premiere program for functional rehabilitation and restoration of oncology patients. Dr. Lewin's contribution to the education of graduate and medical trainees are well recognized particularly in the areas of alaryngeal speech restoration following total laryngectomy, rehabilitation of speech and swallowing after treatment of oral cavity, pharyngeal, and laryngeal cancer, and videostroboscopic evaluation of laryngeal functioning. She has mentored over 55 graduate students and supervised numerous clinical fellowships since joining M. D. Anderson Cancer Center in 1995. She has taught a variety of formal academic courses and served on the faculty of several universities as an adjunct professor over the past 20 years. Dr. Lewin has been an invited guest lecturer at many local, national, and

international conferences, symposia, and meetings in her own or related fields of specialty including head and neck surgery, radiotherapy, medical oncology, and plastic surgery and reconstruction. In addition to student education, she has served as the Director of the International Association of Laryngectomees Voice Institute and continues to lecture and write extensively for national and international public education networks and cancer survivor groups.

Dr. Lewin has received numerous honors and awards for her meritorious contributions to academic scholarship. Dr. Lewin was made a Fellow of the American Speech-Language-Hearing Association in November, 2003. In 2009, she received the Outstanding Alumni Award, College of Communication Arts & Sciences, as well as the Herbert J. and E. Jane Oyer Endowed Lecturer, 2010, from Michigan State University. She is board certified in swallowing and swallowing disorders by the American Speech-Language-Hearing Association. She continues to serve on a variety of institutional committees and has been a steering committee member of the Voice and Voice Disorders Special Interest Division of the American Speech-Language-Hearing Association, an invited committee member of the American Society of Clinical Oncology, American College of Surgeons Oncology Group, and the Radiation Therapy Oncology Group Surgical Subcommittee, among others. Dr. Lewin serves on the editorial board for Head and Neck and provides editorial review for numerous other professional journals. Dr. Lewin has been the principal investigator on 15 research studies and a co-principal investigator or co-investigator on multiple multidisciplinary research protocols and investigations, most currently, 5 funded and active research grants. Finally, Dr. Lewin has written or co-authored over 100 articles in peer-reviewed journals, 22 book chapters, along with a myriad of other publications on the topic of functional restoration of speech and swallowing.

Congratulations to the AHNS 2017 Manuscript Award Winners!

Presented during the AHNS Awards Ceremony

Thursday, April 27, 2017

9:30 am - 9:45am
Seaport ABC

Robert Maxwell Byers Award

Kendall K. Tasche, MD, University of Iowa Hospitals & Clinics

MARGIN ASSESSMENT IN ORAL CANCER SURGERY: RELATIONSHIP BETWEEN CLOSE MARGIN DISTANCE AND LOCAL RECURRENCE

Best Prevention and Early Detection Paper

1st Place Winner: Helmi Khadra, MD, Tulane University School of Medicine

SUPERIOR DETECTION OF METASTATIC CYSTIC LYMPHADENOPATHY IN PATIENTS WITH PAPILLARY THYROID CANCER BY UTILIZATION OF THYROGLOBULIN WASHOUT

Best Prevention and Early Detection Paper

2nd Place Winner: Matt Lechner, MD, PhD, University College London Hospitals

FIELD TESTING OF AN INNOVATIVE APP IN INDIA REVEALS THAT OVER 40% OF INDIVIDUALS CHEW BETEL NUT - FIRST DATA FROM AN AHNS FUNDED PROJECT

Best Resident Clinical Paper

John Pang, MD, University of California - San Diego

CHRONIC POST-OPERATIVE OPIOID USE FOLLOWING SURGERY FOR ORAL CAVITY CANCER

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Committees of the AHNS 2016-2017

Ad Hoc Journal Task Force

Daniel G. Deschler, MD, Chair	2014-2017	John Yoo, MD, FRCSC	2016-2019
David J. Adelstein, MD	2016-2019	D. Gregory Farwell, MD	2014-2017
Carol R. Bradford, MD	2016-2019	Christine G. Gourin, MD	2014-2017
Joseph Anthony Califano, MD	2016-2019	Neil Dwayne Gross, MD	2014-2017
Samir Khariwala, MD	2016-2019	William M. Lydiatt, MD	2014-2017
Brian Nussenbaum, MD	2014-2017	Cherie-Ann O. Nathan, MD	2014-2017
Eben L. Rosenthal, MD	2016-2019		

Ad Hoc Young Members Committee

Vikas Mehta, MD, Co-Chair	2015-2018	Jeffrey Chang-Jen Liu, MD	2015-2018
Thomas Julian Ow, MD, Co-Chair	2015-2018	Luc G.T. Morris, MD MSc	2015-2018
Mihir Kiran Bhayani, MD	2015-2018	Melonie Adia Nance, MD	2015-2018
Carole Fakhry, MD, MPH	2015-2018	Vivian Faye Wu, MD, MPH	2015-2018
Kiran Kakarala, MD	2015-2018	Mark Zafereo, MD	2015-2018
Ted Leem	2015-2018	Jose Pedro Zevallos, MD, MPH	2015-2018
Carol Lewis, MD, MPH	2015-2018		

Advanced Training Council (ATC)

Ara A. Chalian, MD, Chair	2014-2019	Danny Enepekides, MD, FRCS	2015-2020
Donald T. Weed, MD, Secretary	2014-2019	Douglas K. Frank, MD	2015-2020
Amit Agrawal, MD	2014-2019	Gerry F. Funk, MD	2013-2018
William R. Carroll, MD	2013-2018	Douglas A. Girod, MD	2012-2017
Amy Y. Chen, MD, MPH	2014-2019	Babak Givi, MD	2014-2019
Marc A. Cohen, MD, MPH	2015-2020	Robert Hart Lindau, MD	2015-2020
		David J. Terris, MD	2012-2017

AHNS Meetings Task Force

Jonathan Irish, MD, Chair	2016-2017	Cherie-Ann O. Nathan, MD	2016-2017
Brian B. Burkey, MD, Med	2016-2017	Bert W. O'Malley, MD	2016-2017
D. Gregory Farwell, MD	2016-2017	Karen T. Pitman, MD	2016-2017
Robert L. Ferris, MD, PhD	2016-2017	Wendell Gray Yarbrough, MD, MMHC	2016-2017
Dennis H. Kraus, MD	2016-2017		
Jeffrey N. Myers, MD, PhD	2016-2017	Bevan Yueh, MD	2016-2017

AHNS Leadership

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Vikas Mehta, MD 2016-2019
Oleg Militsakh, MD 2015-2018
Tapan A. Padhya, MD 2014-2017
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Marilene B. Wang, MD 2014-2017

Constitution & Bylaws

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Terance T. Tsue, MD 2014-2017

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Jeremy Richmon, MD 2015-2018

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Bevan Yueh, MD 2016-2019

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Larry L. Myers, MD 2016-2018
Melonie Adia Nance, MD 2016-2018
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Tammara L. Watts, MD, PhD 2016-2018
Jose Pedro Zevallos, MD, MPH 2016-2018

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Harold J. Wanebo, MD 2016-2019
Bharat Bhushan Yarlagadda 2016-2019
Chad Zender, MD 2015-2018

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Ian Ganly, MD, PhD 2016-2019
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Gady Har-El, MD 2016-2019
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Brendan C. Stack, MD 2016-2019
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Mike Yao, MD 2016-2019
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Jason Patrick Hunt, MD 2016-2019
Adam S. Jacobson, MD 2016-2019
Dev Prakash Kamdar 2016-2019
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Jonathan Mark, MD 2016-2019
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Enver Ozer, MD 2016-2019
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Lanny G. Close	2016-2019	Giovana R. Thomas, MD	2014-2017
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Andrew M. Coughlin	2016-2019	Mark E.P. Prince, MD, FRCS	2016-2019
Joseph Blake Golden, MD	2015-2018	Jason Thomas Rich, MD	2015-2018
Kunal Sudhir Jain, MD	2016-2019	Merry E. Sebelik, MD	2016-2019
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Dev Prakash Kamdar	2016-2019	Kerstin M. Stenson, MD	2016-2019
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Deepak Kademani, DMD, MD 2016-2019
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David Neskey, MD 2016-2019
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Amy C. Hessel, MD 2014-2017
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Kelly Michele Malloy, MD 2016-2019
Becky Lynn Massey, MD 2015-2018
Cherie-Ann O. Nathan, MD 2014-2017
Elizabeth Anne Nicolli, MD 2016-2019
Karen T. Pitman MD 2014-2017
Anna Maria Pou, MD 2014-2017
Eileen Raynor, MD 2015-2018
Yelizaveta Lisa Shnayder, MD 2014-2017
Catherine Fiona Sinclair, MD, FRACS 2015-2018
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Victoria Meucci Villaflor, MD 2015-2018

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AAO-HNSF Specialty Advisory Council
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ASC Bd of Gov Advisory Council for OTO
Ellie Maghami, MD 2015-2018
Theodoros N. Teknos, MD 2015-2018

American College of Surgeons Commission on Cancer
Daniel G. Deschler, MD 2014-2017

American Joint Committee on Cancer
Dennis H. Kraus, MD 2017-2020

JAMA Otolaryngology – Head & Neck Surgery
D. Gregory Farwell, MD, Associate Co-Editor 2017-2020

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Dale H. Rice, MD	(1997-98)	J. Ryan Chandler, MD*	(1980-81)
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Paul H. Ward, MD	(1983-84)	Joseph H. Ogura, MD*	(1963-65)
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Douglas B. Bryce, MD*	(1981-82)	John J. Conley, MD*	(1959-61)

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Frank C. Marchetta, MD*	(1986)	Harry W. Southwick, MD*	(1965)
Alando J. Ballantyne, MD*	(1985)	Calvin T. Kloop, MD*	(1964)
Darrell A. Jaques, MD	(1984)	H. Mason Morfit, MD*	(1962-63)
Alvin L. Watne, MD	(1983)	Arnold J. Kremen, MD	(1960-61)
John M. Moore, MD	(1982)	Danely P. Slaughter, MD*	(1959)
Elliot W. Strong, MD	(1981)	Grant Ward, MD *	(1958)
Robert G. Chambers, M.D.*	(1980)	Hayes Martin, MD*	(1954-1957)
John C. Gaisford, MD	(1979)		
William A. Maddox, MD	(1978)	*Deceased	

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Marlene Wang
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*List as of April 10, 2017

CME Worksheet

This is not your CME credit form. Please use the worksheet below to track the number of CME hours you attend for each activity. Fill in the number of hours you attended each activity in the chart below to track your CME credits.

WEDNESDAY, APRIL 26, 2017

Time	Activity	Credits Available	Hours Attended
8:00 am - 9:00 am	**Panel 1: Improving Outcomes in Oral Cavity Cancer**	1.0	
9:00 am - 9:45 am	**John Conley Lecture: Strengthening the AHNS through Diversity and Global Outreach**	0.75	
10:15 am - 11:00 am	**Scientific Session 1: Oral Cavity**	0.75	
	Scientific Session 2: Survivorship		
11:00 am - 12:00 pm	**Panel 2: Advanced Non-Melanoma Skin Cancer (NMSC) of the Head and Neck**	1.0	
1:00 pm - 2:00 pm	**Keynote Lecture**	1.0	
2:00 pm - 3:00 pm	**Panel 3: Quality and Value in Head and Neck Reconstruction: Current Trends, Evidence and Practices**	1.0	
	Panel 4: Bringing Unconscious Bias into the Conscious in Head and Neck Surgery		
3:30 pm - 4:30 pm	**Scientific Session 3: Thyroid & Parathyroid**	1.0	
	Scientific Session 4: Head & Neck Reconstruction		
4:30 pm - 5:30 pm	**Panel 5: Nuances in the Management of Parathyroid Diseases**	1.0	
Total Credits Available for Wednesday, April 26, 2017:		**7.5**	

THURSDAY, APRIL 27, 2017

Time	Activity	Credits Available	Hours Attended
6:30 am - 7:45 am	**How to Get a "Head-(and Neck) Start" to Your Career**	1.25	
8:00 am - 8:45 am	**Scientific Session 5: Larynx & Hypopharynx**	0.75	
	Scientific Session 6: Immunotherapy & Genomics		
8:45 am - 9:30 am	**Hayes Martin Lecture: Reconstruction: The Final Dimension in Head and Surgery**	0.75	
10:15 am - 11:00 am	**Presidential Address**	0.75	
11:00 am - 12:00 pm	**Jatin P. Shah Symposium: Aggressive Thyroid Malignancies: State of the Art Management**	1.0	
1:00 pm - 2:00 pm	**Scientific Session 7: Value Based H&N Cancer Care**	1.0	
	Scientific Session 8: Outcomes		
2:00 pm - 3:00 pm	**Panel 6: 8th Edition of the AJCC Staging Manuel: Introduction to Major Changes**	1.0	
	Panel 7: Survivorship/Ethics		
3:30 pm - 5:00 pm	**Scientific Session 9: Oropharynx**	1.5	
	Scientific Session 10: Clinical Research		
Total Credits Available for Thursday, April 27, 2017:		**8**	
TOTAL CREDITS AVAILABLE:		**15.5**	

To receive your CME credit:

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Please allow 4-6 weeks for processing before your certificate arrives.

AHNS Accreditation

Accreditation Statement

The American Head & Neck Society (AHNS) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

Credit Designation Statement

The AHNS designates this live activity for a maximum of **15.5 AMA PRA Category 1 Credit(s)™**. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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Your feedback will be shared with a member of the CME Compliance Committee, who will make the faculty aware of the concerns and/or suggestions.

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The AHNS CME Compliance Committee has defined "bias" as a*n existing predisposition that may interfere with objectivity in judgment. Bias may be minimized through prior declaration of any source of conflict of interest, reference to evidence-based literature and expert opinions, and/or an independent peer-review process.*

If an educational presentation certified for CME includes bias of any commercial interests*, please provide the following details:

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Presentation:	**Commercial Bias by:**	**Promotion via:**
(eg session name, etc)	(ie faculty name, company rep)	(eg handouts, slides, what they said, actions)

Commercial Bias about:

(check all that apply)

___ Patient treatment/management recommendations were not based on strongest levels of evidence available.

___ Emphasis was placed on one drug or device versus competing therapies, and no evidence was provided to support its increased safety and/or efficacy.

___ Trade/brand names were used.

___ Trade names versus generics were used for *all* therapies discussed.

___ The activity was funded by industry and I perceived a bias toward the grantors.

___ The faculty member had a disclosure and I perceived a bias toward the companies with which he/she has relationships.

___ Other (please describe): _____

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Suggestions for avoiding or minimizing bias:

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

Wednesday, April 26, 2017

7:45 AM - 8:00 AM **Welcome & Recognition of Guest of Honor** Seaport ABC

Opening Remarks and Guest of Honor - Jeffrey N. Myers, MD, PhD

Introduction of the Program - Anna M. Pou, MD & David Goldenberg, MD

8:00 AM - 9:00 AM **Panel 1: Improving Outcomes in Oral Cavity Cancer** Seaport ABC

Session Chair: Maie St. John, MD

This session will use a case based format to discuss SLN for oral cavity SCCA, new modalities and trials on early detection and chemoprevention, new reconstructive modalities to improve functional outcomes, adequacy of margins: surgical versus pathologic, and neck dissections: number of nodes examined.

SLN for Oral Cavity SCCA - Cheri-Ann Nathan, MD

Adequacy of Margins: Surgical versus Pathologic - Maie St. John, MD

Quality Improvement in Oral Cavity Cancer - Vasu Divi, MD

Evidence Based Medicine in Oral Cavity Cancer - Dennis H. Kraus, MD

LEARNING OBJECTIVES

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

- Plan in new ways for treating the neck in oral cavity cancers
- Articulate new methods of screening oral cavity lesions
- Apply new techniques in reconstruction

9:00 AM - 9:45 AM **John Conley Lecture: *Strengthening the AHNS through Diversity and Global Outreach*** Seaport ABC

Johannes J. Fagan, MD

Introduction by Jeffrey N. Myers, MD, PhD

9:45 AM - 10:15 AM **Morning Break** Seaport Foyer

10:15 AM - 11:00 AM **Scientific Session 1: Oral Cavity** Seaport ABC

Moderators: Eduardo Mendez, MD & Donald T. Weed, MD

S001: MARGIN ASSESSMENT IN ORAL CANCER SURGERY: RELATIONSHIP BETWEEN CLOSE MARGIN DISTANCE AND LOCAL RECURRENCE Kendall K Tasche, MD, Marisa R Buchakjian, MD, PhD, Steven M Sperry, MD; University of Iowa Hospitals & Clinics

S002: PATTERNS OF RECURRENCE IN ORAL TONGUE CANCER WITH PERINEURAL INVASION Jennifer R Cracchiolo, MD, Bin Xu, MD, PhD, Jocelyn C Migliacci, MA, Nancy Lee, MD, Ronald A Ghossein, MD, Nora Katabi, MD, Snehal G Patel, MD, David G Pfister, MD, Richard J Wong, MD; MSKCC

S003: RISK OF NODAL DISEASE IN PATIENTS WITH ORAL SQAMOUS CELL CARCINOMA IDENTIFIED BY IMMUNE-GENE EXPRESSION PROFILING Kelly Y Liu, Catherine F Poh, DDS, PhD, FRCPC; The University of British Columbia

S004: TOPICAL FLUORESCENT AGENTS TO DIAGNOSIS ORAL SQUAMOUS CELL CARCINOMA Angela Haskins, MD, Kiranya Tipirneni, MD, Yolanda Hartman, BS, Jason Warram, PhD; University of Alabama at Birmingham Medical Center

S005: CHRONIC POST-OPERATIVE OPIOID USE FOLLOWING SURGERY FOR ORAL CAVITY CANCER John Pang, MD[1], Viridiana J Tapia, MPH[1], Kathryn R Tringale, BS[1], Joseph Acevedo, BS, MS[1], Kevin T Brumund, MD[1], Joseph A Califano, MD[1], Timothy Furnish, MD[1], Sunny J Haft, MD[1], William Moss, MD[1], Quyen Nguyen, MD, PhD[1], Jeffrey P Harris, MD, PhD[1], Megan May, BS, MS[2], Jesse R Qualliotine, MD[1], Robert A Weisman, MD[1], Charles S Coffey, MD[1]; [1]University of California - San Diego, [2]Johns Hopkins University School of Medicine

10:15 AM - 11:00 AM **Scientific Session 2: Survivorship** Seaport FGH

Moderators: Ara A. Chalian, MD & Carol Lewis, MD

S006: LONG-TERM SURVIVORSHIP IN HEAD AND NECK SQUAMOUS CELL CARCINOMA Eugenie Du, MD[1], Jose P Zevallos, MD, MPH[1], Angela L Mazul, PHD, MPH[2], Doug Farquhar, MD, MPH[1], Paul Brennan, PHD, MS[3], Devasena Anantharaman, PHD, MSc[3], Behnoush Abedi-Ardekani, MD, MPH[3], Mark C Weissler, MD[1], David Neil Hayes, MD, MPH[4], Andrew F Olshan, PHD[2]; [1]Department of Otolaryngology/ Head and Neck Surgery, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC, [2]Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC, [3]International Agency for Research on Cancer (IARC), Lyon, France, [4]Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC

S007: EXPLORING THE RELATIONSHIP BETWEEN FEAR OF TREATMENT RELATED SIDE-EFFECTS AND TREATMENT OUTCOMES IN HEAD AND NECK CANCER PATIENTS Karishma Chhabria, MPH, BPharm[1], Giselle Carnaby, PhD, MPH, CCCSLP[2]; [1]University of Florida, [2]University of Central Florida

S008: TRAIT MINDFULNESS, PSYCHOSOCIAL AND PROGNOSTIC INDICATORS IN HEAD AND NECK CANCER. Mary L Worthen, MD[1], Whitney Rebholz, PhD[1], Dhruv Sharma[2], Andrea Gentile, MD[3], Mia Jusufbegovic, MD[1], Courtney Brinkman[4], Christina Albert, BA[1], Liz Wilson, BSN, RNC, CCRP, OCN[1], Jeffrey Bumpous, MD[1], Elizabeth Cash, PhD[1]; [1]Department of Otolaryngology-Head and Neck Surgery & Communicative Disorders, University of Louisville School of Medicine, [2]University of Louisville School of Medicine, [3]University of Tennessee Health Science Center, [4]Department of Psychological & Brain Sciences, University of Louisville

S009: MULTIMODAL ANALGESIA IN OUTPATIENT HEAD AND NECK SURGERY: A FEASIBILITY AND SAFETY STUDY Justin Oltman, BSE[1], Oleg Militsakh, MD[2], Mark D'Agostino, MD[3], Brittany Kauffman, BSN[2], Aru Panwar, MD, FACS[4]; [1]College of Medicine, University of Nebraska Medical Center, Omaha, Nebraska, [2]Head and Neck Surgery, Nebraska Methodist Hospital, Omaha, Nebraska, [3]Department of Anesthesiology, Nebraska Methodist Hospital, Omaha, Nebraska, [4]Division of Head and Neck Surgery, University of Nebraska Medical Center & Nebraska Methodist Hospital, Omaha, Nebraska

S010: COGNITIVE FUNCTION AND QUALITY OF LIFE IN PATIENTS WITH OROPHARYNGEAL CANCER Amy M Williams, PhD, Jamie Lindholm, MS, CCCSLP, Farzan Siddiqui, MD, PhD, Tamer A Ghanem, MD, PhD, Steven S Chang, MD; Henry Ford Health System

11:00 AM - 12:00 PM **Panel 2: Advanced Non-Melanoma Skin Cancer (NMSC) of the Head and Neck** Seaport ABC

Session Chair: Neil D. Gross, MD

This session will explore optimal treatment strategies for advanced non-melanoma skin cancer (NMSC) of the head and neck. The panel will discuss in depth clinical cases on advanced NMSC.

Panel Discussion on Advanced NMSC Cases

Moderator: Neil D. Gross, MD & Brian Moore, MD

Panelists: Brian Bienvenu, MD; Brian Moore, MD; & Sue Yom, MD

LEARNING OBJECTIVES

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

- Recognize the shifting epidemiology and presenting signs of advanced-stage non-melanoma skin cancer (NMSC)
- Understand important aspects of contemporary treatment of advanced-stage non-melanoma skin cancer (NMSC)
- Review the rational application of conventional and novel treatments for advanced-stage non-melanoma skin cancer (NMSC)

12:00 PM - 1:00 PM **AHNS Business Meeting *(Members Only)*** Seaport ABC

or Lunch on Own Seaport Foyer

1:00 PM - 2:00 PM **Keynote Lecture: *A Road Less Traveled*** Seaport ABC

Francisco G. Cigarroa, MD

Introduction by Jeffrey N. Myers, MD, PhD

2:00 PM - 3:00 PM **Panel 3: Quality and Value in Head and Neck Reconstruction: Current Trends, Evidence and Practices** Seaport ABC

Session Chair: Matthew Old, MD

With the ever increasing focus on quality in health care, the goal of this panel is to discuss the trends and evidence for quality and value in head and neck reconstruction. The AHNS Reconstruction Committee has embarked and completed many multidisciplinary projects focused on a variety reconstructive issues defining benchmarks and increasing quality and value. The purpose of this panel is to discuss the results of these projects and review the current evidence for head and neck reconstructive practices.

Quality and Value in Head and Neck Reconstruction: Current Trends, Evidence and Practices - Matthew Old, MD

Post-Operative Non-ICU Care: Value, Current Protocols, and Data - Vasu Divi, MD

Predictors of Complications and Readmissions and the Downstream Effects - Derrick Lin, MD

Functional Outcomes After Major Head and Neck Reconstruction - Jeremy Richmon, MD

Antibiotic Usage in Head and Neck Reconstruction - Tamer Ghanem, MD

Flap Surveillance Study/Resident Work Hours - Urjeet Patel, MD

LEARNING OBJECTIVES

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

- Develop post-operative non-ICU care for free flaps based on current protocols and data
- Develop a post-operative antibiotic usage protocol in head and neck reconstruction
- Employ a post-operative flap surveillance protocol based on the current evidence presented

2:00 PM - 3:00 PM **Panel 4: Bringing Unconscious Bias into the Conscious in Head and Neck Surgery** Seaport FGH

***This session will use an Audience Response System.*

Session Chair: Amy Y. Chen, MD, MPH

This panel of three speakers and a moderator will describe the framework of implicit/ unconscious bias, the research of implicit bias in the workplace, and lastly, how unconscious bias impacts the field of head and neck surgery.

Introduction - Amy Y. Chen, MD, MPH

Framework of Implicit Bias - Thierry Devos, PhD

How Does Diversity and Inclusion Enhance to Workplace - Beth G. Chung, PhD

Implicit Bias: Lessons Learned - Carol R Bradford, MD

Conclusion and Audience Q&A - Amy Y. Chen, MD, MPH

LEARNING OBJECTIVES

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

- Describe what is unconscious bias.
- Articulate the findings from research regarding implicit bias in the workplace.
- Recognize the importance of strategies to decrease unconscious bias in head and neck surgery.

3:00 PM - 3:30 PM **Afternoon Break** Seaport Foyer

3:30 PM - 4:30 PM **Scientific Session 3: Thyroid & Parathyroid** Seaport ABC

Moderators: Michael C. Singer, MD & David Steward, MD

S011: CHARACTERIZING THE IMMUNE MICROENVIRONMENT OF PAPILLARY THYROID CARCINOMA Casey Means, MD, Takahiro Tsujikawa, MD, PhD, Daniel Clayburgh, MD, PhD, Maisie Shindo, MD, Lisa Coussens, PhD; Oregon Health & Science University

S012: PREOPERATIVE PREDICTION OF EXTRANODAL EXTENSION IN METASTATIC PAPILLARY THYROID CANCER USING ULTRASONOGRAPHY Daniah Bu Ali, MD, Fadi Murad, MD, Dominique Monlezun, MPH, Michael Serou, MD, Emad Kandil, MD; Tulane University School of Medicine

S013: LYMPH NODE DENSITY IS A PREDICTOR OF OUTCOME IN DIFFERENTIATED THYROID CANCER Moran Amit, MD, PhD, Samantha Tam, MD, Mongkol Boonsripitayanon, MD, Mark Zafereo, MD; University of Texas MD Anderson Cancer Center

S014: TRENDS AND SAFETY OF OUTPATIENT THYROID SURGERY: A REVIEW OF 76,604 CASES IN THE AMERICAN COLLEGE OF SURGEONS NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM Eamon J McLaughlin, MD[1], Jason A Brant, MD[1], Andres M Bur, MD[2], John P Fischer, MD[3], Jinbo Chen, PhD[4], Steven B Cannady, MD[1], Ara A Chalian, MD[1], Jason G Newman, MD[1]; [1]Department of Otorhinolaryngology, Hospital of the University of Pennsylvania, [2]Department of Otorhinolaryngology, Emory University, [3]Department of Plastic and Reconstructive Surgery, Hospital of the University of Pennsylvania, [4]Department of Biostatistics and Epidemiology, University of Pennsylvania School of Medicine

S015: PREOPERATIVE VITAMIN D DEFICIENCY IS A PREDICTOR OF HYPOCALCEMIA FOLLOWING THYROIDECTOMY Genival B de Carvalho, MD, Lina R Giraldo, MD, Hugo F Kohler, PhD, Joel A Novoa, MD, Luiz P Kowalski, PhD; A C Camargo Cancer Center

S016: THE UTILITY OF INTRAOPERATIVE PTH IN THE SETTING OF PRE-OPERATIVE IMAGING LOCALIZATION AND CONCORDANT OPERATIVE FINDINGS. Shivani Shah-Becker, MD, David Goldenberg, MD; Penn State Milton S. Hershey Medical Center

S017: THE ROLE OF ADJUVANT EXTERNAL BEAM RADIOTHERAPY IN LOCALLY ADVANCED DIFFERENTIATED THYROID CANCER Samantha Tam, MD, Moran Amit, MD, PhD, Mongkol Boonsripitayanon, MD, Mark Zafereo, MD; University of Texas MD Anderson Cancer Center

3:30 PM - 4:30 PM

Scientific Session 4: Head & Neck Reconstruction

Seaport FGH

Moderators: Trevor G. Hackman, MD & Jalisi Scharukh, MD

S018: THE AMERICAN COLLEGE OF SURGEONS NSQIP RISK CALCULATOR DOES NOT ACCURATELY PREDICT OUTCOMES IN PATIENTS UNDERGOING MICROVASCULAR HEAD AND NECK RECONSTRUCTION: A STUDY OF 555 CASES. Yue Ma, MD[1], Benjamin Laitman, PhD[2], Vir Patel, BS[2], Kian Bichoupan, PhD[2], Marita Teng, MD[1], Eric Genden, MD[1], Samuel DeMaria, MD[3], Brett A Miles, MD[1]; [1]Department of Otolaryngology Head and Neck Surgery, Icahn School of Medicine at Mount Sinai, New York, NY 10029, USA, [2]Icahn School of Medicine at Mount Sinai, New York, NY 10029, USA, [3]Department of Anesthesia, Icahn School of Medicine at Mount Sinai, New York, NY 10029, USA

S019: ALCOHOL ABSTINENCE CONTRACTING IMPROVES POSTOPERATIVE OUTCOMES IN ALCOHOL MISUSERS WITH FREE FLAP RECONSTRUCTION OF THE HEAD AND NECK Azeem Kaka, MD, Songzhu Zhao, BS, Enver Ozer, MD, Amit Agrawal, MD, Stephen Kang, MD, James Rocco, MD, PhD, Ricardo Carrau, MD, Theodoros Teknos, MD, Matthew Old, MD; The James Cancer Hospital and Solove Research Institute, Wexner Medical Center at The Ohio State University.

S020: OUTCOMES AND COST IMPLICATIONS OF MICROVASCULAR RECONSTRUCTIONS OF THE HEAD AND NECK Larissa Sweeny[1], Eben Rosenthal[2], Tyler Light[3], Jessica Grayson[1], Daniel Petrisor[3], Scott Trobb[3], Benjamin Greene[1], William Carroll[1], Mark Wax[3]; [1]UAB, [2]Stanford, [3]OHSU

S021: SHORTER LATENCY BETWEEN RADIATION THERAPY AND SALVAGE LARYNGOPHARYNGEAL SURGERY INCREASES COMPLICATION RATES FOLLOWING MICROVASCULAR FREE TISSUE TRANSFER Chase M Heaton, MD, Rahul Seth, MD, P. Daniel Knott, MD; University of California - San Francisco

S022: DOES DECREASING ANTIBIOTIC DURATION PREVENT INFECTIONS IN HEAD AND NECK - FREE FLAP PATIENTS? A NOVEL PROTOCOL PUT TO THE TEST Dziegielewski T Peter, MD, FRCSC, Sanjeev Balamohan, MD, Dustin Lang, MD, FRCSC, Patrick J Antonelli, MD, Raja Sawhney, MD, MFA, Brian Boyce, MD; University of Florida

S023: OUTCOMES AND RELIABILITY OF THE VENOUS FLOW COUPLER IN THE POSTOPERATIVE MONITORING OF HEAD AND NECK FREE FLAPS Rance J Fujiwara, BS[1], Jacqueline M Dibble, APRN[2], Scott Larson, MD[3], Saral Mehra, MD, MBA[1]; [1]Yale University School of Medicine, [2]Yale-New Haven Hospital, [3]Benefis Hospitals

S024: COMPARISON OF THE SUBMENTAL ISLAND ARTERY PEDDLED FLAP AND THE FOREARM FREE FLAP FOR THE RECONSTRUCTION OF DEFECTS OF THE HEAD AND NECK Nawaf Aslam-Pervez, MD, DDS, Steven Caldroney, MD, DDS, Amal Isiah, MD, PhD, Joshua E Lubek, MD, DDS, FACS; University of Maryland

4:30 PM - 5:30 PM **Panel 5: Nuances in the Management of Parathyroid Diseases** Seaport ABC

Session Chair: David Steward, MD

This panel of experts will discuss nuances in the management of hyperparathyroidism, including: normocalcemic hyperparathyroidism, hypercalcemia with inappropriately normal parathyroid hormone, non-localizing hyperparathyroidism, and management of recurrent or persistent hyperparathyroidism.

Normocalcemic Hyperparathyroidism - Michael C. Singer, MD

Normohormonal Hyperparathyroidism - David C. Shonka, MD

Non-Localizing Disease - Emad Kandil, MBBCh

Management of Persistent or Recurrent Disease - Brendan C. Stack, MD

LEARNING OBJECTIVES

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

- Recognize the differences between normocalcemia primary hyperparathyroidism and secondary hyperparathyroidism
- Distinguish between hypercalcemia caused by primary hyperparathyroidism with normal PTH values from that caused by non-parathyroid etiology
- Explain management strategy for nonlocalized primary hyperparathyroidism requiring surgery

6:00 PM - 7:00 PM **Fellowship Information Session** Seaport ABC

Attend the fellowship information session and learn about the many Head & Neck and Endocrine fellowship opportunities offered through the Society. Fellowship directors from many of the AHNS-accredited programs will be on hand, and information about the application and match process will be available. A meet-and-greet reception will follow the session.

7:30 PM - 9:30 PM **Past Presidents' Reception - *Invitation Only***

Thursday, April 27, 2017

6:30 AM - 7:45 AM **How to Get a "Head-(and Neck) Start" to Your Career** Seaport ABC

Jointly Sponsored by the AHNS Young Members Ad Hoc Committee, Women in AHNS Committee, & AHNS Diversity Ad Hoc Committee

Session Chairs: Amy Y. Chen, MD, MPH, Uma Duvvuri, MD, PhD, and Vikas Mehta, MD

The hour-long breakfast panel will include 4 brief talks from well established members of the AHNS community on the topics of Professional Advancement, Job/Contract Negotiation, Establishing Translational Relationships, and Partnering with Industry, with a Q/A session to follow. The end of the session will also allow for open discussions with panelists and members and networking.

Moderators: Melonie Nance, MD & Thomas J. Ow, MD

Establishing Collaborative Relationships for Translational Research - Carole Fakhry, MD, MPH

Partnering with Industry - Eduardo Mendez, MD

Leadership/Professional Advancement - Amy Y. Chen, MD, MPH

Job Negotiation/Planning - Patrick K. Ha, MD

LEARNING OBJECTIVES

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

- To provide participants with tips and pearls for career advancement
- Help navigate attendees on how to create and foster relationships with institutional and industry partners
- To help participants learn successful and productive negotiating strategies early in their career

8:00 AM - 8:45 AM **Scientific Session 5: Larynx & Hypopharynx** Seaport ABC

Moderator: Andrew McWhorter, MD

S025: SARCOPENIA IS AN INDEPENDENT NEGATIVE PROGNOSTIC INDICATOR FOR WOUND COMPLICATIONS AFTER TOTAL LARYNGECTOMY Virginie Achim, MD, Jasper Bash, Alia Mowery, Alexander Guimaraes, MD, Ryan Li, MD, Josh Schindler, MD, Mark Wax, MD, Peter Andersen, MD, Daniel Clayburgh, MD, PhD; Oregon Health and Science University

S026: EFFECT OF A PERIOPERATIVE EDUCATION PROGRAM ON UNPLANNED READMISSION FOLLOWING TOTAL LARYNGECTOMY: RESULTS OF A PROSPECTIVE COHORT TRIAL Evan M Graboyes, MD[1], Dorina Kallogjeri, MD, MPH[2], Sara Kukuljan, BS, RN, CCRC[2], Jan Zerega, BSN, RN[2], Linda Neal, MA, CCCSLP[2], Kelsey M Rosenquist, MA, CCCSLP[2], Brian Nussenbaum, MD, FACS[2]; [1]Medical University of South Carolina, [2]Washington University School of Medicine

S027: ORGAN PRESERVATION VERSUS PRIMARY SURGERY IN THE MANAGEMENT OF T3 LARYNGEAL AND HYPOPHARYNGEAL CANCERS Sudhir V Nair, Dr, Swagnik Chakrabarti, Dr, Jai P Agarwal, Prof, Pankaj Chaturvedi, Prof; Tata Memorial Hospital

S028: THE ROLE OF SALVAGE SURGERIES IN RECURRENT HYPOPHARYNGEAL CANCERS AFTER PRIMARY ORGAN PRESERVATION THERAPY Pei-Hsin Chu, MD[1], Tuan-Jen Fang, MD[3], Ngan-Ming Tseng, MD[2], Chun-Ta Liao, MD[3]; [1]Department of Otorhinolaryngology Head & Neck Surgery, Chang Gung Memorial Hospital, Linkou and Taipei, [3]Department of Otorhinolaryngology Head & Neck Surgery, Chang Gung Memorial Hospital, College of Medicine Chang Gung University, Linkou and Taipei, [2]Department of Radiation Oncology, Chang Gung Memorial Hospital, Linkou and Taipei

S029: SURVIVAL AFTER REFUSAL OF SURGICAL TREATMENT FOR LOCALLY ADVANCED LARYNGEAL CANCER Sean T Massa, MD, Joel Franco, MD, Greg M Ward, MD, Ronald J Walker, MD; Saint Louis University

8:00 AM - 8:45 AM

Scientific Session 6: Immunotherapy & Genomics

Gaslamp ABC

Moderators: Joseph Califano, MD & John Sunwoo, MD

S030: NOVEL C-TERMINAL HEAT SHOCK PROTEIN INHIBITORS ARE EFFECTIVE IN TARGETING CISPLATIN RESISTANT HEAD AND NECK SQUAMOUS CELL CARCINOMA. Kevin J Kovatch, MD[1], Chitra Subramanian, PhD, MBA[3], Thomas E Carey, PhD[1], Mark E Prince, MD[1], Brian S Blagg, PhD[2], Mark S Cohen, MD, FACS[3]; [1]Department of Otolaryngology, University of Michigan, [3]Department of Surgery, University of Michigan, [2]Department of Medicinal Chemistry, The University of Kansas

S031: CISPLATIN SCHEDULE AND PHARMACOGENOMIC PREDICTORS OF OTOTOXICITY IN HEAD AND NECK CANCER PATIENTS TREATED WITH CHEMORADIATION. Eric Winquist[1], Wendy A Teft[1], Anthony Nichols[1], Christina Parker[2], Peggy Francis[2], Maureen Trinnear[2], Yun-Hee Choi[1], Nedal Bukhari[1], Jelena Lukovic[1], Sara Kuruvilla[1], Suzanne Richter[1], Alex Hammond[1], Nancy Read[1], Varagur Venkatesan[1], Danielle MacNeil[1], Kevin Fung[1], Stephen Welch[1], David A Palma[1], John Yoo[1], Richard B Kim[1]; [1]University of Western Ontario, [2]London Health Sciences Centre

S032: PD-1 BLOCKADE PREVENTS THE DEVELOPMENT OF ORAL SQUAMOUS CELL CARCINOMA FROM CARCINOGEN-INDUCED PREMALIGNANT LESIONS Jin Wang[1], Bingbing Wang[1], Xiaoyuan Zhu[1], Tongxin Xie[1], Adel K El-Naggar[2], Jeffrey N Myers[1], Carlos Caulin[1]; [1]Departments of Head and Neck surgery, The University of Texas MD Anderson Cancer Center, [2]Department of Pathology, The University of Texas MD Anderson Cancer Center

S033: POST-OPERATIVE IMMUNE CHECKPOINT BLOCKADE TO PREVENT CANCER RECURRENCE IN THE SURGICAL WOUND Nayeon Choi, MD, Hangyul Kim, MD, Jungjoo Lee, MD, Youngsang Cho, MD, Boyoung Kim, MD, Han-Sin Jeong, MD, PhD; Samsung Medical Center

S034: ANALYSIS OF THE GENOMIC LANDSCAPE OF ANAPLASTIC THYROID CANCER PROVIDES INSIGHT INTO THYROID CANCER PROGRESSION Anthony C Nichols, MD[1], Stephen Y Lai, MD, PhD[2], Stephenie Prokopec, PhD[3], David Wheeler, PhD[4], Nicole Pinto, BSc, MD[1], John W Barrett, PhD[1], John A Copland, PhD[5], Robert Smallridge, MD[5], Steven Scherer, PhD[4], Nishant Agrawal, MD[6], Douglas Ball, MD[7], Barry Nelkin, PhD[7], John Yoo, MD[1], Kevin Fung, MD[1], Yuri Nikiforov, MD, PhD[8], Thomas Giordano, MD, PhD[9], William C Faquin, MD, PhD[10], Michelle D Williams, MD[2], Michael Rivera, MD[11], Anthony Gill, MD, PhD[12], Cathie Garnis, PhD[13], James W Rocco, MD, PhD[14], Paul Weinberger, MD[15], Liu Xi, PhD[4], Alfred Lam, MD, PhD[16], Tobias Carling[17], Reju Korah, PhD[17], Roderick Clifton-Bligh[12], Gary Clayman, MD[18], Justin Bishop, MD, PhD[7], Christopher Howlett, MD, PhD[1], Paul C Boutros, PhD[3]; [1]Western University, [2]MD Anderson

Cancer Center, [3]Ontario Institute for Cancer Research, [4]Baylor College of Medicine, [5]Mayo Clinic Florida, [6]University of Chicago, [7]Johns Hopkins University, [8]University of Pittsburgh Medical Center, [9]University of Michigan, [10]Harvard University, [11]Mayo Clinic Minnesota, [12]University of Sydney, [13]University of British Columbia, [14]Ohio State University, [15]Lousiana State University - Shrevport, [16]Griffith University, [17]Yale University, [18]Clayman Thyroid Cancer Center

S074: AVELUMAB (ANTI-PD-L1) IN COMBINATION WITH CHEMORADIOTHERAPY (CRT) VS CRT IN FIRST-LINE TREATMENT OF LOCALLY ADVANCED SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK (LA-SCCHN): JAVELIN HEAD AND NECK 100 PHASE 3 TRIAL Nancy L Lee, MD[1], Robert L Ferris, MD, PhD[2], Kevin J Harrington, MD[3], Robert I Haddad, MD[4], Jean Bourhis, MD, PhD[5], Makoto Tahara, MD, PhD[6], Margarida Geraldes, PhD[7], Dimitry S.A Nuyten, MD, PhD[7], Zelanna Goldberg, MD[7], Ezra Cohen, MD[8]; [1]Memorial Sloan Kettering Cancer Center, [2]University of Pittsburgh Medical Center, [3]The Institute of Cancer Research Chester Beatty Laboratories, [4]Dana-Farber Cancer Institute, Harvard Medical School, [5]Centre Hospitalier Universitaire Vaudois (CHUV) University of Lausanne, [6]National Cancer Center Hospital East, [7]Pfizer Inc., [8]Moores Cancer Center, University of California

8:45 AM - 9:30 AM **Hayes Martin Lecture:** Seaport ABC
Reconstruction: The Final Dimension in Head and Neck Surgery
Mark K. Wax, MD
Introduction by Jeffrey N. Myers, MD, PhD

9:30 AM - 9:45 AM **AHNS Research Awards** Seaport ABC

9:45 AM - 10:15 AM **Morning Break** COSM Exhibit Hall – Grand A-D

10:15 AM - 11:00 AM **Presidential Address:** Seaport ABC
The Next XIX
& Presidential Awards
Jeffrey N. Myers, MD, PhD
Introduction by Jonathan Irish, MD, MSc, FRCSC

11:00 AM - 12:00 PM **Jatin P. Shah Symposium:** Seaport ABC
Aggressive Thyroid Malignancies: State of the Art Management
Session Chair: Gregory L. Randolph, MD

A renowned panel of presenters will review the latest updates in the surgical management of a range of more challenging forms of thyroid cancer including aggressive and invasive differentiated thyroid cancer, Medullary and Anaplastic thyroid cancer.

Tall Cell, Insular…How Does It Change What We Do? - Joseph Scharpf, MD

Anaplastic Cancer…Should We Operate? Tracheostomy? - David Goldenberg, MD

Medullary Thyroid Cancer… How Has Management Changed - Mark Zafereo, MD

Invasive WDTC… Extent of Surgery, Adjuvant Treatment - Ralph P. Tufano, MD

Scientific Session — Thursday, April 27, 2017

LEARNING OBJECTIVES

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

- Articulate the important preop features to identify advanced thyroid cancer in order that the surgeon is prepared optimally.
- Employ the most recent guidelines based surgical care to patients with advanced thyroid cancer.
- Integrate the multiple factors important to make key decisions such as tracheotomy in anaplastic cancer and lateral neck dissection in medullary cancer.

12:00 PM - 1:00 PM **Lunch with Exhibitors** COSM Exhibit Hall – Grand A-D

1:00 PM - 2:00 PM **Scientific Session 7: Value Based H&N Cancer Care** Seaport ABC

Moderators: Eric Lentsch, MD & Andrew J. Nemechek, MD

S037: COST-EFFECTIVE ANALYSIS OF TREATMENT STRATEGY OF HEAD AND NECK SQUAMOUS CELL CARCINOMA BY EARLY AND LATE STAGE AT DIAGNOSIS IN A CANCER CARE FACILITY Shin Jeong, PhD, Carol M Lewis, MD, Associate, Professor; MD Anderson Cancer Center

S035: A RANDOMIZED CONTROLLED TRIAL COMPARING OUTPUT VOLUME THRESHOLDS FOR DRAIN REMOVAL AFTER SELECTIVE LATERAL NECK DISSECTIONS: A PRELIMINARY REPORT. Matthew Tamplen, MD[1], Elizabeth Shuman, BA[1], Jonathan R George, MD[1], Chase Heaton, MD[1], Steven Wang, MD[2], William R Ryan, MD[1]; [1]UCSF, [2]University of Arizona College of Medicine

S036: VENOUS THROMBOEMBOLISM INCIDENCE IN HEAD AND NECK SURGERY PATIENTS: ANALYSIS OF THE VETERANS AFFAIRS SURGICAL QUALITY IMPROVEMENT PROGRAM (VASQIP) DATABASE Alia Mowery, BS, Tyler Light, BS, Daniel Clayburgh, MD, PhD; Oregon Health and Science University

S038: MULTIDISCIPLINARY HEAD AND NECK CANCER CLINIC; A SINGLE INSTITUTION EXPERIENCE M Townsend, MD, D Kallogjeri, MD, MPH, S Jansen, RN, B Nussenbaum, MD, FACS; washington university in st louis

S039: COST AND HEALTHCARE UTILIZATION AMONG HEAD AND NECK CANCER PATIENTS IN A SINGLE-PAYER UNIVERSAL HEALTH CARE MODEL Art Ambrosio, MD[1], Diana D Jeffery, PhD[2], C. Allison Russo, DrPH[3], Laura Hopkins, MS[3], Elizabeth A Kostas-Polston, PhD[3], Harry B Burke, MD, PhD[4]; [1]Naval Medical Center San Diego, Naval Hospital Camp Pendleton, [2]Department of Defense - Defense Health Agency, [3]Kennell and Associates, Inc., [4]Uniformed Services University of the Health Sciences

S040: READMISSIONS IN HEAD AND NECK CANCER - A NATIONAL PERSPECTIVE Michelle M Chen, MD, Ryan K Orosco, MD, Jeremy P Harris, MD, Julie B Porter, MS, Eben L Rosenthal, MD, Wendy Hara, MD, Vasu Divi, MD; Stanford University

S041: PREDICTION OF DISCHARGE DESTINATION FOLLOWING LARYNGECTOMY Fangfang Wang, BM[1], Robert Lindau, MD[2], Oleg Militsakh, MD[2], Andrew Coughlin, MD[2], Russell Smith, MD[2], Harlan Sayles, MS[3], Daniel Lydiatt, MD[2], William Lydiatt, MD[2], Aru Panwar, MD, FACS[4]; [1]College of Medicine, University of Nebraska Medical Center, Omaha, Nebraska, [2]Head and Neck Surgery, Nebraska Methodist Hospital, Omaha, Nebraska, [3]College of Public Health, University of Nebraska Medical Center, Omaha, Nebraska, [4]Division of head and neck surgery, University of Nebraska Medical Center & Nebraska Methodist Hospital, Omaha, Nebraska

S042: THE POSITIVE IMPACT OF EXPANDING THE ROLE OF ADVANCED PRACTICE PROVIDERS IN HEAD AND NECK CANCER CARE Emily Shindeldecker, NP, Kristen Johnson, MHA, Megan Adelman, PA, Laura Skoracki, PA, Stephanie Wigton, PA, Ann Onofri, NP, Steve Kang, MD, Theodoros Teknos, MD, Amit Agrawal, MD, James Rocco, MD, PhD, Enver Ozer, MD, Ricardo Carrau, MD, Matthew Old, MD; The Ohio State University

1:00 PM - 2:00 PM Scientific Session 8: Outcomes

Gaslamp ABC

Moderators: Patrick K. Ha, MD & Mark Zafereo, MD

S043: REASSESSMENT OF ADJUVANT THERAPY FOR HIGH-RISK RESECTED SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK Gaurav S Ajmani, MHS, Cheryl C Nocon, MD, Mihir K Bhayani, MD; The University of Chicago Pritzker School of Medicine; NorthShore University HealthSystem

S044: MARGIN STATUS, SURGICAL APPROACH, AND ONCOLOGIC OUTCOMES FOLLOWING GROSS TOTAL RESECTION OF SINONASAL MELANOMA. Zafar Sayed, MD, Jennifer Cracchiolo, MD, Luc Morris, MD, Ian Ganly, MD, PhD, Benjamin Roman, MD, Jocelyn Migliacci, MS, Christopher A Barker, MD, Alexander N Shoushtari, MD, Marc Cohen, MD; Memorial Sloan Kettering Cancer Center

S045: INCIDENCE AND RISK FACTORS FOR MANDIBULAR OSTEORADIONECROSIS IN THE MODERN ERA Sung Ho Moon, MD[1], Dominic H Moon, MD[2], Kyle Wang, MD[2], Mark C Weissler, MD[3], Trevor G Hackman, MD[3], Adam M Zanation, MD[3], Brian D Thorp, MD[3], Samip N Patel, MD[3], Jose P Zevallos, MD[3], Lawrence B Marks, MD[2], Bhishamjit S Chera[2]; [1]Department of Radiation Oncology, Research Institute and Hospital, National Cancer Center, Goyang, Korea, [2]Department of Radiation Oncology, University of North Carolina School of Medicine, Chapel Hill, North Carolina, [3]Department of Otolaryngology/Head and Neck Surgery, University of North Carolina School of Medicine, Chapel Hill, North Carolina

S046: ENDOSCOPIC ENDONASAL APPROACH FOR TREATMENT OF SINONASAL TRACT AND NASOPHARYNGEAL ADENOID CYSTIC CARCINOMA Ryota Kashiwazaki, MD, Meghan T Turner, MD, Eric W Wang, MD, Carl H Snyderman, MD, MBA, Seungwon Kim, MD; University of Pittsburgh Medical Center

S047: SURVIVAL OUTCOMES OF HPV-RELATED OROPHARYNGEAL CANCER AND NODE-POSITIVE DISEASE WITHOUT ADJUVANT RADIATION Farzad Masroor, MD, Deepak Gurushanthaiah, MD; Kaiser Permanente Northern California

S048: FACTORS THAT PREDICT MORTALITY IN PAPILLARY THYROID CARCINOMA Omar Karadaghy, BLA, Dorina Kallogjeri, MD, MPH, Jay F Piccirillo, MD, FACS; Washington University

S049: BODY MASS INDEX AND COMPOSITION PREDICT SURVIVAL IN HEAD AND NECK CANCER PATIENTS WITH COMORBID CONDITIONS Gina Y Chang, MPH, Michael Fattouh, BA, Thomas J Ow, MD, Keivan Shifteh, MD, Gregory Rosenblatt, PhD, Michael B Prystowsky, MD, PhD, Nicolas F Schlecht, PhD; Albert Einstein College of Medicine

S050: THE IMPACT OF MENTAL HEALTH COMORBIDITIES ON THE BOTTOM LINE IN HEAD AND NECK CANCER CARE Diana D Jeffery, PhD[1], Art A Ambrosio, MD, MBA, LCDR, MC, USN[2], C. Allison Russo, DrPH[3], Laura Hopkins, MPA[3], Elizabeth A Kostas-Polston, PhD, APRN, FAANP, FAAN[4], Harry B Burke, MD, PhD[4]; [1]Defense Health Agency, [2]U.S. Navy, Department of Defense, [3]Kennell and Associates, [4]Uniform Services University for the Health Sciences

2:00 PM - 3:00 PM

Panel 6: 8th Edition of the AJCC Staging Manuel: Introduction to Major Changes

Seaport ABC

Session Chair: William M. Lydiatt, MD

The 8th Edition of the AJCC Staging Manual introduces major changes in several key aspects of staging head and neck cancer of vital importance to clinicians and researchers. The Head and Neck Task Force worked closely with the UICC to make sure the changes could be a world-wide modification. There are several significant changes in the system including the use of extra nodal extension as a factor in most cancers, depth of invasion in oral cavity cancer, incorporation of skin cancer in the head and neck section since it has been dropped from the manual for the body, and most significantly, a new staging system for p16+, HPV-associated oropharyngeal cancers. This Panel presentation will include a discussion of the rational for changes for each of the major cases, presented by the leaders of the task force in each area.

Development of a Novel Staging System in HPV-Associated Oropharyngeal Cancers and the Unknown Primary - William M. Lydiatt, MD

Incorporation of Extranodal Extension in Head and Neck Staging - Snehal G. Patel, MD

Incorporation of Depth of Invasion in Oral Cavity T Classification - John A. Ridge, MD, PhD

Modification and Rationale for Incorporating Skin in Head and Neck - Joseph A. Califano, MD

Discussion and Questions

LEARNING OBJECTIVES

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

- Distinguish which patients should be staged by the HPV associated staging system and which should be staged by the HPV-non-associated.
- Employ the new T category for oral cavity cancer using depth of invasion and how depth and thickness are different.
- Interpret the different ways extranodal extension will impact the staging of patients with head and neck cancers and discriminate between the sites where this is used.

2:00 PM - 3:00 PM

Panel 7: Ethics in Practice: Cancer Survivorship and Its Consequences

Gaslamp ABC

Session Chair: Susan D. McCammon, MD

This panel will introduce key concepts of head and neck cancer survivorship, including the recent American Cancer Society's Head and Neck Survivorship Care Guideline, and open dialogue around best practices for providing comprehensive care for this growing patient population. The panel will discuss regulatory requirements, quality metrics, and the consequences on resource allocation, medicalization and medical decision making.

Scientific Session — Thursday, April 27, 2017

Readiness for Survivorship Regulation and Accreditation - Kelly Malloy, MD

Prioritizing Quality Metrics for Survivorship Programs - Karen Pitman, MD

Medical Decision-Making in the Era of Prolonged Survival - Carole Fakhry, MD, MPH

Survival, Cure, Recurrence: The Effects of Upstreaming Palliative Care - Susan D. McCammon, MD

Questions

LEARNING OBJECTIVES

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

- Describe current accreditation and regulatory requirements for survivorship programs and assess their own institution's readiness.
- Compare and prioritize current quality metrics for cancer survivorship and implement best practices for state of the science survivorship programs.
- Predict how anticipation of prolonged future survival affects present medical decision making about treatment and supportive care.

3:00 PM - 3:30 PM **Afternoon Break** COSM Exhibit Hall – Grand A-D

3:30 PM - 5:00 PM **Scientific Session 9: Oropharynx** Seaport ABC

Moderators: Jason G. Newman, MD & Richard Smith, MD

S056: LONG-TERM SURVIVAL OUTCOMES AND CAUSES OF MORTALITY IN ADVANCED STAGE OROPHARYGEAL SQUAMOUS CELL CARCINOMA Jessica M Clark, MD, MSc, Daniel A O'Connell, MD, Lakshmi Puttagunta, MD, Jeffrey Harris, MD, Hadi Seikaly, MD, MAL, Vincent L Biron, MD, PhD; University of Alberta

S051: SECOND PRIMARY IN OROPHARYNGEAL SQUAMOUS CELL CARCINOMA (OPSCC) — A SINGLE INSTITUTION EXPERIENCE Ameya Asarkar, MD[1], Xiaohui Ma[1], Tara Moore-Medlin[1], Jose M Flores, MD, MPH[2], Cherie Ann Nathan, MD[1]; [1]LSU Health Sciences Center - Shreveport, [2]Johns Hopkins Schools of Medicine & Public Health

S052: FACTORS ASSOCIATED WITH RECURRENCE AND DISTANT METASTASIS IN HPV-POSITIVE OROPHARYNGEAL SQUAMOUS CELL CARCINOMA (OPSCC) FOLLOWING TRANSORAL ROBOTIC SURGERY (TORS) John R Sims, MD, Kathryn Van Abel, MD, Eliot J Martin, PAC, Daniel L Price, MD, Kerry D Olsen, MD, Eric J Moore, MD; Mayo Clinic - Rochester

S053: PROGNOSTIC SIGNIFICANCE OF ANGIOLYMPHATIC AND PERINEURAL INVASION IN HUMAN PAPILLOMAVIRUS ASSOCIATED OROPHARYNGEAL CARCINOMA William G Albergotti, MD, PhD, Phillip A Huyett, MD, Umamaheswar Duvvuri, MD, PhD, Robert L Ferris, MD, PhD, Jonas T Johnson, MD, PhD, Seunwon Kim, MD; University of Pittsburgh Medical Center

S054: A SYSTEMATIC REVIEW OF TRANSORAL LASER MICROSURGERY AND TRANSORAL ROBOTIC SURGERY FOR OROPHARYNGEAL CANCER Jonathan Waxman, Naweed Raza; Wayne State University

S055: APPLICATION OF THE 8TH EDITION AMERICAN JOINT COMMITTEE ON CANCER STAGING SYSTEM FOR HPV-RELATED OROPHARYNGEAL CANCER TREATED WITH TRANSORAL ROBOTIC SURGERY Arvind K Badhey, MD[1], A Olson[2], S Kadakia, MD[1], J E Russo, MD[3], P Ting, BS[3], M Khalid, BS[3], M Yao, MD[3], M S Teng, MD[3], E M Genden, MD[3], B A Miles, MD[3], R L Chai, MD[3]; [1]New York

Eye and Ear Infirmary of Mount Sinai, [2]Department of Population Health Science and Policy, Icahn School of Medicine at Mount Sinai, [3]Department of Otolaryngology, Icahn School of Medicine at Mount Sinai

S057: COMPARATIVE ANALYSIS OF TWO ROBOTIC THYROIDECTOMY PROCEDURES: TRANSORAL VERSUS BILATERAL AXILLO-BREAST APPROACH Hoon Yub Kim[1], Young Jun Chai[2], Gianlorenzo Dionigi[3], Angkoon Anuwong[4], Jeremy Richmon[5], Ralph Tufano, MD, MBA[6]; [1]Korea University Hospital, Korea University College of Medicine, Seoul, Korea, [2]Seoul National University Boramae Medical Center, Seoul, Korea, [3]Department of Surgical Sciences and Human Morphology, University of Insubria (Como-Varese), Varese, Italy, [4]Police General Hospital, Faculty of Medicine, Siam University, Bangkok, Thailand, [5]Massachusetts Eye and Ear Infirmary, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA, [6]Johns Hopkins Medicine, Baltimore, MD, USA

S058: META-ANALYSIS COMPARING OUTCOMES OF DIFFERENT TRANSORAL SURGICAL MODALITIES IN MANAGEMENT OF OROPHARYNGEAL CARCINOMA Ahmed S Ibrahim, MD[1], Francisco J Civantos, MD[2], Giovana R Thomas, MD[2], Jason M Leibowitz, MD[2], David Arnold, MD[2], Elizabeth J Franzmann, MD[2], Elizabeth Nicolli, MD[2], Ka-Ming Lo, MPH[3], Zsuzsanna Nemeth, MLIS[4], Zoukaa Sargi, MD[2], Donald T Weed, MD[2]; [1]Department of Surgical Oncology, National Cancer Institute, Cairo University, Cairo, Egypt, [2]Department of Otolaryngology-Head and Neck Surgery, University of Miami School of Medicine, Miami, FL, USA, [3]Department of Epidemiology and Public Health, University of Miami Miller School of Medicine, Miami, Florida, USA, [4]Department of Health Informatics, University of Miami Miller School of Medicine, Louis Calder Memorial Library

S059: RACIAL DISPARITIES IN ACCESS TO TRANSORAL ROBOTIC SURGERY FOR OROPHARYNGEAL CANCER Demetri Arnaoutakis, MD, John Wang, BA, Larry Myers, MD, John Truelson, MD, Baran Sumer, MD; University of Texas Southwestern Medical Center

S060: HISTOPATHOLOGIC EVALUATION OF FROZEN MARGINS AFTER TRANS-ORAL ROBOTIC SURGERY (TORS) Kelly Magliocca, DDS, MPH[1], Christopher C Griffith, MD[1], Emily Barrow, MD[1], J. Trad Wadsworth, MD[2], Amy Y Chen, MD[1], Mark El-Deiry, MD[1], C. Arturo Solares, MD[1], H. Michael Baddour, MD[1], Danielle L Gainor, MD[1], Mihir Patel, MD[1]; [1]Emory University, [2]Moffit Cancer Center

S061: NIVOLUMAB VERSUS INVESTIGATOR'S CHOICE THERAPY AMONG PATIENTS WITH HUMAN PAPILLOMAVIRUS (HPV)-ASSOCIATED SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK (SCCHN): UPDATED RESULTS FROM CHECKMATE 141 ML Gillison[1], K Harrington[2], RI Ferris[3], J Guigay[4], G Blumenschein, Jr.[5], J Fayette[6], Ad Colevas[7], N Kiyota[8], Jw Shaw[9], M Monga[9], M Lynch[9], J Kopit[9], F Taylor[10], M DeRosa[10], L Morrissey[10], K Cocks[10], Nf Saba[11]; [1]The Ohio State University, [2]Royal Marsden NHS Foundation Trust/The Institute of Cancer Research, [3]University of Pittsburgh Medical Center Cancer Center, [4]Centre Antoine Lacassagne, [5]MD Anderson Cancer Center, [6]Centre Leon Berard, [7]Stanford University, [8]Kobe University Hospital, [9]Bristol-Myers Squibb, [10]Adelphi Values, [11]Winship Cancer Institute

S062: A NOVEL BIOINFORMATIC METHOD TO EVALUATE THE IMAGING CHARACTERISTICS AND PREDICT EXTRACAPSULAR EXTENSION IN LYMPH NODE METASTASIS ASSOCIATED WITH HPV POSITIVE OROPHARYNGEAL SQUAMOUS CELL CARCINOMA. Jonathan C Garneau, MD, Anthony B Costa, PhD, Brett A Miles, DDS, MD, FACS; Icahn School of Medicine at Mount Sinai - NY

3:30 PM - 5:00 PM **Scientific Session 10: Clinical Research** Gaslamp ABC

Moderators: Amy Y. Chen, MD, MPH & Larry L. Myers, MD

S063: HIGH-DOSE OR LOW-DOSE CISPLATIN CONCURRENT WITH RADIOTHERAPY IN LOCALLY ADVANCED HEAD AND NECK SQUAMOUS CELL CANCER Szu-Yuan Wu, MD, MPH[1], Chia-Lun Chang, MD[2], Kevin Sheng-Po Yuan[3]; [1]Department of Radiation Oncology, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan, [2]Department of Hemato-Oncology, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan, [3]Department of Otorhinolaryngology, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan

S064: OBJECTIVE AND SUBJECTIVE HYPOSALIVATION AFTER TREATMENT FOR HEAD AND NECK CANCER: LONG TERM OUTCOMES Ilya Likhterov, MD[1], Ashley Olson, PhD[2], Cindy Ganz[1], Mark L Urken, MD[1], Raymond Chai, MD[1], Jerry Liu, MD[1], Robert Stewart, MD[1], Bruce Culliney, MD[1], Daisy Palacios, RN[1], Cathy L Lazarus, PhD[1]; [1]Mount Sinai Beth Israel, [2]Mount Sinai School of Medicine

S065: THE UTILITY OF ELECTIVE NECK DISSECTION IN NODE-NEGATIVE FLOOR OF MOUTH SQUAMOUS CELL CARCINOMA Meghan M Crippen, MS, Sei Y Chung, BS, Jacob S Brady, BA, Jean A Eloy, MD, Soly Baredes, MD, Richard Chan W Park, MD; Rutgers New Jersey Medical School

S066: SUBMANDIBULAR GLAND TRANSFER FOR THE PREVENTION OF OSTEORADIONECROSIS AND XEROSTOMIA IN RADIATED PATIENTS Harry H Ching, MD, Nathaniel H Reeve, MD, Robert C Wang, MD; University of Nevada School of Medicine

S067: A CLINICAL TRIAL EVALUATING 5-AZACYTIDINE IN THE TREATMENT OF HPV-ASSOCIATED HEAD AND NECK CANCER PATIENTS Michael Hajek, Cyril Gary, Andrew Sewell, MD, Asel Biktasova, MD, PhD, Barbara Burtness, MD, Hari Deshpande, MD, Natalia Issaeva, PhD, Wendell G Yarbrough, MD, MMHC, FACS; Yale School of Medicine

S068: CONTEMPORARY TRENDS AND OUTCOMES IN THE MANAGEMENT OF SALIVARY GLAND CARCINOMA: A NATIONAL CANCER DATABASE REVIEW Jay Ferrell, MD, Daniel Clayburgh, MD, PhD; Oregon Health and Science University

S069: INCIDENCE OF DE NOVO HEAD AND NECK CANCER AFTER LIVER TRANSPLANTATION AT A SINGLE INSTITUTION Ryan C Graham[1], Jeffrey S Mella[2], Richard S Mangus, MD, MS, FACS[1]; [1]Indiana University School of Medicine, [2]UTHSC San Antonio

S070: PROGNOSTIC FACTORS AND SURVIVAL IN ADENOID CYSTIC CARCINOMA OF THE SINONASAL CAVITY Ashley C Mays, MD, Ehab Y Hanna, MD, Renata Ferrarotto, MD, Diana Bell, MD, Dianna Roberts, PhD, Jack Phan, MD, Natalie Silver, MD, Collin F Mulcahy, Michael E Kupferman, MD, Shirley Y Su, MD; MD Anderson Cancer Center

S071: ADJUVANT THERAPY FOLLOWING SURGERY FOR HEAD AND NECK CUTANEOUS SQUAMOUS CELL CARCINOMA Brianna N Harris, MD, Ahmed Bayoumi, Michael G Moore, MD, Shyam Rao, MD, D. Gregory Farwell, MD, FACS, Arnaud F Bewley, MD; UC Davis

S072: FACTORS IMPACTING TREATMENT APPROACHES FOR SINONASAL SQUAMOUS CELL CARCINOMA: A NATIONAL CANCER DATA BASE ANALYSIS Jennifer R Cracchiolo, MD[1], Krupa Patel[2], Benjamin R Roman, MD, MSHP[1], Jocelyn C Migliacci, MA[1], Sean M McBride, MD, MPH[1], Ian Ganly, MD, PhD[1], Luc Morris, MD, MSc[1], Viviane S Tabar, MD[1], Marc Cohen, MD, MPH[1]; [1]MSKCC, [2]Weill Cornell Medical College

Scientific Session — Thursday, April 27, 2017

S073: LIMITED PREDICTIVE VALUE OF THE NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM RISK CALCULATOR FOR USE IN HEAD AND NECK ONCOLOGY SURGICAL PATIENTS Peter S Vosler, MD, PhD, Mario Orsini, Danny J Enepekides, MD, Kevin M Higgins, MD; University of Toronto

5:30 PM - 7:00 PM **President's Poster Discussion Session** — Grand Hall A-D, Grand Hall Foyer, and Seaport Foyer

Poster Tour Leaders:

Clinical Research	**William M. Lydiatt, MD**
Clinical Trials/NMSC/ Immunotheraphy	**Rohan R. Walvekar, MD**
Endocrine	**Maria Evasovich, MD**
Genomics/Basic Science	**Young Kim, MD, PhD**
Larynx/Hypopharynx	**Genevieve A. Andrews, MD**
Oral Cavity	**Maie St. John, MD**
Oropharynx	**William R. Ryan, MD**
Outcomes	**Lana L. Jackson, MD**
Reconstruction/Robotics	**Jason T. Rich, MD**
Survivorship	**Susan D. McCammon, MD**
Value	**Marilene B. Wang, MD**

7:30 PM - 8:30 PM **President's Reception** — Coronado ABC

Faculty Listing

Genevieve Ann Andrews, MD, Penn State Health, Hershey, PA

Bryan Bienvenu, MD, Louisiana Hematology Oncology Associates, Baton Rouge, LA

Carol R. Bradford, MD, University of Michigan Medical School, Ann Arbor, MI

Joseph A. Califano, MD, University of California at San Diego, San Diego, CA

Ara A. Chalian, MD, Univ of PA, Philadelphia, PA

Amy Y. Chen, MD, MPH, Emory University, Atlanta, GA

Beth Chung, PhD, San Diego State University, San Diego, CA

Francisco Cigarroa, MD, University of Texas Health Science Center at San Antonio, San Antonio, TX

Thierry Devos, PhD, San Diego State University, San Diego, CA

Vasu Divi, MD, Stanford University, Stanford, CA

Maria Evasovich, MD, University of Minnesota, Minneapolis, MN

Johannes J. Fagan, MD, University of Cape Town, Cape Town, South Africa

Carole Fakhry, MD, MPH, Johns Hopkins Univ, Baltimore, MD

Tamer Ghanem, MD, PhD, Henry Ford Med Grp, Detroit, MI

David Goldenberg, MD, Penn State University College of Medicine, Hershey, PA

Neil D. Gross, MD, MD Anderson Cancer Center, Houston, TX

Patrick K. Ha, MD, University of California San Francisco, San Francisco, CA

Trevor G. Hackman, MD, Univ of NC at Chapel Hill, Chapel Hill, NC

Lana L. Jackson, MD, Univ of Mississippi Med Ctr, Jackson, MS

Scharukh Jalisi, MD, Boston University, Boston, MA

Emad Kandil, MBBCh, Tulane University Medical School, New Orleans, LA

Young Kim, MD, PhD, Vanderbilt University, Nashville, TN

Dennis H. Kraus, MD, Northwell Health, New York, NY

Eric Lentsch, MD, Medical University of South Carolina, Charleston, SC

Carol Lewis, MD, MPH, UT MD Anderson Cancer Ctr, Houston, TX

Derrick Lin, MD, Mass Eye and Ear/ Mass General Hospital, Boston, MA

William M. Lydiatt, MD, Nebraska Methodist Hospital, Omaha, NE

Kelly M. Malloy, MD, University of Michigan, Ann Arbor, MI

Susan D. McCammon, MD, UT Medical Branch, Galveston, TX

Andrew McWhorter, MD, LSUHSC New Orleans, Baton Rouge, LA

Eduardo Mendez, MD, University of Washington/Fred Hutchinson Cancer Research Center, Seattle, WA

Brian A. Moore, MD, Ochsner Health System, New Orleans, LA

Jeffrey N. Myers, MD, PhD, MD Anderson Cancer Ctr, Houston, TX

Larry L. Myers, MD, University of Texas Southwestern Medical Center, Dallas, TX

Melonie A. Nance, MD, University of Pittsburgh School of Medicine / VA Pittsburgh Health System, Pittsburgh, PA

Cherie-Ann O. Nathan, MD, LSU Health Shreveport, Shreveport, LA

Andrew J. Nemechek, MD, Porter Adventist Hospital - Centura Health System, Denver, CO

Jason G. Newman, MD, University of Pennsylvania, Philadelphia, PA

Matthew Old, MD, The Ohio State University, Columbus, OH

Thomas J. Ow, MD, Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY

Faculty Listing

Snehal G. Patel, MD, Memorial Sloan Kettering Cancer Center, New York, NY

Urjeet A. Patel, MD, Northwestern University, Chicago, IL

Karen T. Pitman, MD, Johns Hopkins Head and Neck Surgery at GBMC, Towson, MD

Gregory L. Randolph, MD, Massachusetts Eye & Ear Infirmary, Boston, MA

Jason T. Rich, MD, Washington Univ SOM, St Louis, MO

Jeremy Richmon, MD, Mass Eye and Ear, Boston, MA

John A. Ridge, MD, PhD, Fox Chase Cancer Center, Philadelphia, PA

William R. Ryan, MD, University of California San Francisco, San Francisco, CA

Joseph Scharpf, MD, Cleveland Clinic Foundation, Cleveland, OH

David C. Shonka, MD, University of Virginia, Charlottesville, VA

Michael C. Singer, MD, Henry Ford Health System, Detroit, MI

Richard V. Smith, MD, Albert Einstein College of Medicine, Bronx, NY

Maie St. John, MD, PhD, University of California, Los Angeles, Los Angeles, CA

Brendan C. Stack, MD, University of Arkansas for Medical Sciences, Little Rock, AR

David Steward, MD, University of Cincinnati College of Medicine, Cincinnati, OH

John Sunwoo, MD, Stanford University, Stanford, CA

Ralph P. Tufano, MD, Johns Hopkins Medical Institution, Baltimore, MD

Rohan R. Walvekar, MD, LSU Health Sciences Center, New Orleans, LA

Marilene B. Wang, MD, David Geffen School of Medicine at UCLA, Los Angeles, CA

Mark K. Wax, MD, Oregon Health & Science University, Portland, OR

Donald T. Weed, MD, University of Miami Miller School of Medicine, Miami, FL

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Oral Papers

S001: MARGIN ASSESSMENT IN ORAL CANCER SURGERY: RELATIONSHIP BETWEEN CLOSE MARGIN DISTANCE AND LOCAL RECURRENCE

Kendall K Tasche, MD, Marisa R Buchakjian, MD, PhD, Steven M Sperry, MD; University of Iowa Hospitals & Clinics

Importance: There is a lack of consistency in the literature regarding the definition of 'close' resection margins in the surgical treatment of oral cavity squamous cell carcinoma (OCSCC), and the relationship of the distance between invasive tumor and surgical margin with local recurrence (LR) rate is not well characterized.

Objective: To analyze the relationship between the specific distance from invasive tumor to surgical margin and LR in a cohort of patients with OCSCC.

Design, Setting, and Participants: Retrospective cohort study of 406 patients treated via en bloc resection for OCSCC between 2005-2014 at the University of Iowa Hospitals and Clinics, and in whom permanent margin evaluation was performed on the main tumor specimen and intraoperative frozen section margin assessment from the tumor bed.

Main Outcomes and Measures; LR rate based on minimum millimeter distance between invasive tumor and the inked main specimen margin.

Results: The LR rate was analyzed in relation to each millimeter distance of invasive cancer from the inked main specimen margin, with results showing an exponential inverse relationship. The LR rate for positive margins was 0.46 (95% CI 0.34-0.57); for <1 mm, 0.27 (95% CI 0.16-0.41); for 1 mm, 0.15 (95% CI 0.06-0.31); for 2 mm, 0.18 (95% CI 0.08-0.35); for 3 mm, 0.10 (95% CI 0.02-0.32); for 4 mm, 0.15 (95% CI 0.04-0.39); and for >5 mm, 0.12 (95% CI 0.06-0.21). Compared to patients with margins ≥5 mm, patients with tumor extending to the inked edge on the main specimen had a relative risk (RR) of local recurrence of 3.9 (95% CI 2.1-7.3); for distances of <1 mm, the RR was 2.29 (1.1-4.7); for 1 mm, 1.27 (0.5-3.3); for 2 mm, 1.57 (0.6-3.8); for 3 mm, 0.81 (0.2-3.4); and for 4 mm, 1.27 (0.4-4.2). Analysis of the receiver operating curve identified that a cutoff of <1 mm is most appropriate for classifying a higher risk of local recurrence. The predictive power of resection margin distance for local recurrence based on an area under the curve calculation is 0.69.

Conclusions and Relevance: The commonly used cutoff of 5 mm for a close margin appears to lack an evidential basis or utility in predicting local recurrence. Invasive tumor within 1 mm of the permanent specimen margin is associated with a significantly higher local recurrence rate, though there is no statistically significant difference for distances greater than that. This study suggests a cutoff of <1 mm close distance identifies patients at increased risk of local recurrence, who should be considered for adjuvant treatment. Analysis of the tumor specimen rather than the tumor bed is necessary for this determination.

S002: PATTERNS OF RECURRENCE IN ORAL TONGUE CANCER WITH PERINEURAL INVASION

Jennifer R Cracchiolo, MD, Bin Xu, MD, PhD, Jocelyn C Migliacci, MA, Nancy Lee, MD, Ronald A Ghossein, MD, Nora Katabi, MD, Snehal G Patel, MD, David G Pfister, MD, Richard J Wong, MD; MSKCC

Background: The prognostic value of perineural invasion (PNI) in oral tongue squamous cell carcinoma (OTSCC) is debated. Understanding patterns of failure associated with PNI warrants consideration when recommending adjuvant therapy for this adverse feature in isolation. Additionally, it is unclear if subclassification of PNI improves risk stratification.

Methods: Patients with OTSCC who received primary surgical treatment at Memorial Sloan-Kettering Cancer Center from 2000-2012 were identified. In total, 381 patient's specimens, stages T1-T4, were reviewed by head and neck pathologists for presence of PNI. In cases with PNI identified, further histopathologic analysis was conducted to sub classify PNI characteristics Overall survival (OS), disease specific survival (DSS), local recurrence-free survival (LRFS), regional recurrence-free survival (RRFS), and disease recurrence-free survival (DRFS) estimates were calculated by the Kaplan Meier method as primary endpoints. PNI and characteristics of PNI as predictors of outcome were analyzed by univariate and multivariable Cox proportional hazards regression analysis.

Results: PNI was present in 105 (28.7%) cases. Patients with PNI were more likely to have a higher T-stage tumor, lymph node metastasis (p=0.001) and

p=0.001, respectively). A majority of the patients were male (58.3%) and under the age of 60 (55.6%). At a median follow-up of 39.8 months (0.03-150.1 months), the 5-year rates of OS, DSS, LRFS, RRFS, and DRFS for all patients were 71.5%, 81.5%, 79.7%, 83.5% and 92.6%, respectively. On multivariable analysis, when adjusting for tumor size and lymph node status, patients with PNI had a decreased DSS (HR 2.67 CI 1.38-4.79, p=0.003). When adjusting for tumor size, tumor thickness vascular invasion, margin status, lymph node status, and postoperative RT, patients with PNI had a decreased OS (HR 2.74 CI 1.17-4.37, p< 0.001). In contrast, PNI was not predictive of LRFS or RRFS on multivariable analysis. However, when PNI was present, patients were 6.39 (CI: 2.70-15.10, p=0.003) times more likely to have a distant recurrence and 19.40 (CI 6.70-56.14, p<0.001) more likely if foci density (defined as foci of PNI/tumor section) was greater than one on univariate analyses when compared to having no PNI.

Conclusion: Presence of PNI in OTSCC predicts for worse DSS and OS. Distant recurrence is the driving pattern of failure in patients with PNI. Increase foci density is associated with worse DRFS. Recommendation of adjuvant therapy and the development of new strategies should be considered in the context of patterns of failure in patients with PNI as an isolated adverse feature.

S003: RISK OF NODAL DISEASE IN PATIENTS WITH ORAL SQAMOUS CELL CARCINOMA IDENTIFIED BY IMMUNE-GENE EXPRESSION PROFILING

Kelly Y Liu, Catherine F Poh, DDS, PhD, FRCPC; The University of British Columbia

Importance: Nodal disease (N+) is the most significant prognostic factor in oral squamous cell carcinoma (OSCC). Preventive neck dissection (ND) may improve outcome; however, clinico-pathological features, including depth of invasion (DOI), are poor indicators and often result in unnecessary or delayed ND leading to morbidity and mortality. There is an urgent need to identify new markers(s) to stratify patients for appropriate treatment.

Objectives: To explore differential gene expression (DGE) on cancer immunology-related genes of OSCC with known nodal status.

Design: A pilot case control study on OSCC patients who were treated with curative surgery with at least 3-year postoperative follow-up.

Methods: Patients with available fresh-frozen tissues of the primary tumors were identified from a pan-Canadian COOLS trial. Tissue containing >80% tumor cells were processed for total RNA purification (AllPrep® DNA/RNA/miRNA Universal Kit, Quagene©). Commercially available nCounter® GX assay with PanCancer Immune Profiling Panel (Nanostring Technologies, Seattle, WA) was used to quantify expression of 730 genes specific to immune cells, tumor cells, or immunological pathways. Statistical analysis was performed using R base functions or packages (v3.3.2), with $p<0.05$ (2-sided) considered significant. Student's t-test or chi-square test was used for comparing patient or clinico-pathological variables between N0/N+ groups; and general logistic regression for examining odds ratio of these variables with N+. In DGE analysis, difference in gene expression was described in log2 transformed fold-change (FC); association of expression with N+/N0 was analyzed with multivariate linear regression model followed by *p*-value correction using Benjamini-Hochberg controlling false discovery rate (FDR); and unsupervised hierarchical clustering was used to examine the predictive value (sensitivity, SE and specificity, SP) on N+/N0.

Results: The study cohort consisted of 87 patients of whom 43(49%) were N+ either at time of surgery (51%) or within 2 years of follow-up (49%); whereas 44(51%) patients remained N0 for at least 3 years. There was no difference between the groups (in age, gender, smoking history, or tumor site) except for tumor Grade III and DOI ≥4mm. Using multivariate logistic regression analysis, Grade III was the only factor significantly associated with N+ status (OR, 25; 95% CI, 5.5-157.3; $p<0.001$) but not DOI ≥4mm (OR 2.0; 95% CI, 0.7-6.0; $p=0.2$). Combination of Grade III and ≥4mm showed 39.5% SE and 95.5% SP. For patients who were neither Grade III or ≥4mm, we identified a subset of 21 genes (FDR<0.001 and ≥1 FC) which had SE of 61.5% and SP of 78.6%; outperforming conventional risk marker using ≥4mm DOI alone (SE, 65%; SP, 43%). With the combination of clinico-pathological and genomic markers, we would perform 56 NDs (10 salvage and 9 unnecessary NDs) vs using clinic-pathological alone (69 NDs; 9 salvage and 24 unnecessary NDs).

Conclusion: This preliminary data identified a panel of genomic markers that can potentially be used for stratifiying patient's treatment according ot their risk of nodal disease; ultimately, reduce cost and improve quality of life. Further validation study is ongoing and warranted.

S004: TOPICAL FLUORESCENT AGENTS TO DIAGNOSIS ORAL SQUAMOUS CELL CARCINOMA

Angela Haskins, MD, Kiranya Tipirneni, MD, Yolanda Hartman, BS, Jason Warram, PhD; University of Alabama at Birmingham Medical Center

Introduction: Oral squamous cell carcinoma (OSCC) remains a leading contributor to overall head and neck malignancy. In recent years, cancer-specific fluorescent imaging targets have been used to aid in the diagnosis, delineation, and resection of various tumor types. Despite their success, criticism has emphasized the futility of intravenous injection of these agents. This study analyzes the effectiveness of topical application of three injectable fluorescent agents in the diagnosis and delineation of OSCC. Agents of focus include cetuximab IRDye-800CW, a fluorescently-labeled epidermal growth factor receptor (EGFR) inhibitor, Integrisense 750, a fluorochrome and integrin $\alpha v\beta 3$ antagonist, and Prosense 750EX, a fluorescent agent activated by tissue proteases.

Methods: A xenograft model was created by injecting the dorsum of nude athymic mice with luciferase-positive cells from the UM-SCC-1 cell line. After a 72 hour incubation period, dorsal soft tissue flaps were elevated and removed. Soft tissue flaps were imaged to verify bioluminescence at the site of each injected tumor. We then topically applied each of the above fluorescent imaging agents individually to single soft tissue tumor flaps (n=6). Flaps were then imaged to assess specific fluorescent values; optimal agent concentrations and imaging time points were determined. Final images were obtained after the soft tissue flaps were washed with phosphate-buffered saline (PBS). Blocking studies were performed to explore target specificity for cancer cells versus non-cancerous background. Student's t-tests were used to analyze numerical data.

Results: Maximum pre-wash mean tumor-to-background ratio (TBR) using cetuximab IRDye-800CW was achieved with 2 mg/mL concentration at time 16 minutes (TBR=1.11). Washing the soft tissue flaps with PBS reliably and significantly improved tumor delineation compared to background. There was a 2.54% decrease in mean TBR after prior application of unlabeled EGFR inhibitor.

In the Integrisense 750 group, maximum mean TBR occurred at 0 minutes with a concentration of 61 ng/mL (TBR=1.98). Washing the soft tissue flap did not have a reliably significant effect on tumor delineation. There was a 25.3% decrease in mean TBR after prior application of unlabeled integrin $\alpha v\beta 3$ antagonist.

In the Prosense 750EX group, maximum mean TBR occurred at 16 minutes with a concentration of 30.5 ng/mL (TBR=0.964). Washing the tumor flap did not reliably affect tumor delineation. Interestingly, there was a 15% increase in TBR with prior application of unlabeled pan-cathepsin antibody.

Conclusion: Cetuximab IRDye-800CW and Integrisense 750 show promise for topically-based application and the enhanced ability to assess for OSCC. To assess tumors using topically-applied cetuximab IRDye-800CW, this agent should be applied at a concentration of 2 mg/mL, tumors should be allowed to rest in solution for 16 minutes, and the site of interest should be washed with saline prior to fluorescent imaging. When assessing tumors while using topically-applied Integrsense 750, fluorescent imaging should be performed immediately after application of agent without a preceding saline wash. Together, these agents represent a unique, noninvasive technique for improving the identification of dysplastic and neoplastic lesions in patients with true OSCC.

S005: CHRONIC POST-OPERATIVE OPIOID USE FOLLOWING SURGERY FOR ORAL CAVITY CANCER

John Pang, MD[1], Viridiana J Tapia, MPH[1], Kathryn R Tringale, BS[1], Joseph Acevedo, BS, MS[1], Kevin T Brumund, MD[1], Joseph A Califano, MD[1], Timothy Furnish, MD[1], Sunny J Haft, MD[1], William Moss, MD[1], Quyen Nguyen, MD, PhD[1], Jeffrey P Harris, MD, PhD[1], Megan May, BS, MS[2], Jesse R Qualliotine, MD[1], Robert A Weisman, MD[1], Charles S Coffey, MD[1]; [1]University of California - San Diego, [2]Johns Hopkins University School of Medicine

Background: Opioids are frequently used to treat cancer-related pain, yet overuse of prescription painkillers

has become a public health epidemic. Chronic opioid use has not been well described after head and neck cancer (HNC) surgery. This study characterizes chronic opioid use and associated clinical factors in patients undergoing surgery for oral cavity cancer.

Methods: Data on patient demographics, medical history, cancer stage, treatment, prescribed post-hospitalization opioids, and chronic opioid use (> 90 days post-operatively) were obtained through retrospective chart review of patients undergoing surgery for oral cavity cancer from 2011 to 2016 at a single academic center. Univariate and multivariate logistic regression was performed to investigate factors associated with chronic opioid use. A multivariable Cox proportional hazards model was used to estimate overall survival.

Results: Ninety-nine patients were included for analysis. Chronic opioid use was observed in 41.4% of patients post-operatively, and 82.4% of these patients were taking opioids specifically for HNC pain. Nearly half (48.7%) were actively receiving their prescription from a HNC treatment provider. Twenty-three percent of patients who were not opioid users before surgery became chronic opioid users after surgery. On multivariate logistic regression, patients with pre-operative opioid use (OR 5.35, CI 1.30 – 21.97, p = 0.020) and prior tobacco use (8.55, CI 1.69 – 43.35, p = 0.010) were more likely to be chronic post-operative opioid users. By contrast, patients with disease-free status without recurrence were less likely to be chronic post-operative opioid users (OR 0.23, CI 0.07 – 0.77, p = 0.018). Multivariable Cox proportional hazards regression showed significantly increased hazard of death in pre-operative opioid users (HR 2.52, CI 1.12 – 5.68, p = 0.025) after adjusting for age, comorbidities, and stage.

Conclusion: In this cohort of patients undergoing surgery for oral cavity tumors, chronic post-operative opioid use was prevalent. Patients with prior tobacco use and pre-operative opioid use were more likely to be chronic post-operative users, whereas patients who had no recurrence after surgery were less likely. Prior opioid use may be a prognostic factor for decreased survival. Further research is indicated to better characterize the implications of chronic opioid use after HNC surgery.

S006: LONG-TERM SURVIVORSHIP IN HEAD AND NECK SQUAMOUS CELL CARCINOMA

Eugenie Du, MD[1], Jose P Zevallos, MD, MPH[1], Angela L Mazul, PHD, MPH[2], Doug Farquhar, MD, MPH[1], Paul Brennan, PHD, MS[3], Devasena Anantharaman, PHD, MSc[3], Behnoush Abedi-Ardekani, MD, MPH[3], Mark C Weissler, MD[1], David Neil Hayes, MD, MPH[4], Andrew F Olshan, PHD[2]; [1]Department of Otolaryngology/ Head and Neck Surgery, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC, [2]Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, Chapel Hill, NC, [3]International Agency for Research on Cancer (IARC), Lyon, France, [4]Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC

Background: Head and neck squamous cell carcinoma (HNSCC) is a heterogeneous group of diseases that includes cancers of the oral cavity, pharynx and larynx. Though overall survival differs significantly depending on the primary site of tumor and stage of disease, overall survival at five years is approximately 50%. As the majority of recurrences and mortality occur within 5 years, there is a paucity of literature examining long-term survivorship after this time period. The epidemiology of HNSCC has dramatically changed in the last twenty years with the ongoing rise of human papillomavirus (HPV)-associated oropharyngeal cancer (OPSCC). Patients with HPV+ OPSCC have significantly improved survival when compared to HPV- HNSCC despite presentation at advanced stages. We aim to analyze the long-term survivorship in a population-based cohort for patients with HNSCC with stratification by HPV status.

Methods: Patients alive 5 years post-diagnosis were identified from the Carolina Head and Neck Cancer Study (CHANCE), a population based case-control study. Age-matched controls alive 5 years post reference date were identified and matched in 5-year increments. Date of death was ascertained from the National Death Index. HPV status was ascertained by p16 immunohistochemistry. Non-HPV-associated HNSCCs, defined as all non-oropharyngeal cancers and HPV negative OPSCC, were age-matched 2:1 with controls. HPV-associated

OPSCC patients were age-matched 3:1 with controls. Kaplan-Meier curves were constructed and stratified by smoking for cases and controls. Hazard ratios (HRs) were calculated with Cox proportional hazards models and adjusted for private insurance (yes/no), race, and sex.

Results: A total of 342 non-HPV-associated HNSCC patients were age-matched with 684 controls and 121 HPV-associated OPSCC patients were age-matched with 366 controls. For non-HPV-associated HNSCC patients alive 5 years post-diagnosis, ten-year survival was 63.6% (95% CI 58.0%-69.8%) for smokers and 72.1% (95% CI 57.5-90.3%) for non-smokers. Among age-matched controls, survival was 84.6% (95% CI 80.3%-89.1%) and 89.5% (95% CI 86.0%-93.2%) in smokers and non-smokers, respectively. The HR for risk of death in non-HPV-associated HNSCC patients was 2.50 (1.19-5.25) for non-smokers and 3.96 (2.65-5.91) for smokers. For HPV-associated OPSCC patients alive 5 years post-diagnosis, ten-year survival was 83.5% (95% CI 94.3%-99.5%) and 91.3% (95% CI 83.3%-100%) in smokers and non-smokers, respectively. Among age-matched controls, survival was 90.3% (95% CI 85.2%-95.8%) and 96.9% (95 CI 94.3%-99.5%) in smokers and non-smokers, respectively. The HR for death in HPV-associated OPSCCs was 2.69 (0.74-9.86) for non-smokers and 5.64 (2.00-15.89) for smokers.

Conclusions: This is among the first studies to examine long-term HNSCC survivorship with HPV stratification in a population-based setting. We note that survival continues to decline after five years in both HPV-associated and non-HPV-associated HNSCC when compared to age-matched controls. In both non-HPV-associated and HPV-associated HNSCC, smoking plays a significant role in long-term survival. While HPV-positive OPSCC survival remains excellent after five years, HPV-positive OPSCC non-smokers have a decreased survival when compared to controls that approaches that seen in smoking controls. These data provide important prognostic information for patient with HNSCC and underscore the importance of smoking cessation even after successful therapy for HNSCC.

S007: EXPLORING THE RELATIONSHIP BETWEEN FEAR OF TREATMENT RELATED SIDE-EFFECTS AND TREATMENT OUTCOMES IN HEAD AND NECK CANCER PATIENTS

Karishma Chhabria, MPH, BPharm[1], Giselle Carnaby, PhD, MPH, CCCSLP[2]; [1]University of Florida, [2]University of Central Florida

Objectives: Head and Neck Cancer (HNC) patients suffer highest treatment related morbidities. Nearly all patients experience some degree of treatment related fear. This study aims to evaluate the relationship between fear of treatment and treatment outcomes following radiation therapy +/- chemotherapy in HNC patients

Materials and Methods: This prospective survey study included 48 newly diagnosed HNC patients. Surveys such as Brief Worry Scale, intrusive thoughts subscale and pain scales were administered at the time of diagnosis and end of treatment (6weeks) along with questions related to fear and dysphagia.

Results: Majority of the patients were Caucasian males (77.1%), mean age of 62.6 years (SD=12.3 years) with modal tumor stage 2 receiving 61.3gy of radiation (SD=9.42gy). Statistical significant correlations with fear and (a) uncertainty about the future (r=0.689, p=0.00), (b)Intrusive thoughts subscale (r=0.589, p=0.00), (c) anxiety about cancer treatment (r=0.746, p= 0.00) prior to treatment were observed. Significant differences in means at baseline and end of treatment for uncertainty about the future (t = 3.188, p = 0.003); concern about cancer treatment (t = 2.278, p = 0.029) and intrusive thoughts subscale (t = 1.993, p = 0.05) were revealed. A statistically significant difference between groups in route of food administration i.e. via mouth or via tube with uncertainty about the future (F (2,32) = 4.241, p = 0.023); fearful about treatment (F (2,32) = 4.207, p = 0.023); anxiety (F (2,34) = 6.204, p = 0.005) and intrusive thoughts at baseline (F (2,32) = 4.471, p = 0.019) were identified. Post hoc analysis revealed patients consuming food via mouth were significantly less fearful as compared to those feeding via tube. Differences in means for low levels of self-help adherence with higher levels of intense pain were reported (F (2,34) =3.424, p=0.029). Regression analysis revealed for every one unit increase in fear of treatment on the visual analogue scale, predicted adherence to self-help behaviors increases by 0.092 units after controlling for worry, weight and route of food consumption at follow up.

Conclusion: Results suggest higher fear and pain was associated with lower

adherence to self-help behaviors and modifications in diet leading to poor quality of life in HNC patients. Our findings indicate that high levels of fear prior to radiation therapy were related to swallowing deficits and poorer treatment outcomes in these patients. Future research should look at influence of social support and self-efficacy to self-help behaviors in this population.

S008: TRAIT MINDFULNESS, PSYCHOSOCIAL AND PROGNOSTIC INDICATORS IN HEAD AND NECK CANCER.

Mary L Worthen, MD[1], Whitney Rebholz, PhD[1], Dhruv Sharma[2], Andrea Gentile, MD[3], Mia Jusufbegovic, MD[1], Courtney Brinkman[4], Christina Albert, BA[1], Liz Wilson, BSN, RNC, CCRP, OCN[1], Jeffrey Bumpous, MD[1], Elizabeth Cash, PhD[1]; [1]Department of Otolaryngology-Head and Neck Surgery & Communicative Disorders, University of Louisville School of Medicine, [2]University of Louisville School of Medicine, [3]University of Tennessee Health Science Center, [4]Department of Psychological & Brain Sciences, University of Louisville

PURPOSE: Cancers of the head and neck (H&N) are associated with a complex array of unique stressors for patients in the diagnostic, treatment, and even survivorship stages. These patients are at higher risk for psychosocial issues, including anxiety and depression. Mindfulness-based stress reduction interventions teach strategies to increase self-regulated attention to the present moment and cultivation of nonjudgmental attitudes. Such interventions have proven beneficial in reducing distress, and improving quality of life and disease outcomes among patients with cancer. In order to tailor behavioral interventions for this subset of cancer patients, it is important to evaluate their pre-existing, or "trait" levels of mindfulness. It is possible that trait mindfulness may serve a protective role in patients with cancer by attenuating psychological distress. In this pilot study, we hypothesized that patients who report higher levels of trait mindfulness would report lower levels of anxiety and depression, present at an earlier stage of disease, have less pain, and be less likely to use tobacco.

METHODS: Patients presenting to a Multidisciplinary H&N Cancer Clinic for treatment planning (N=33) completed psychometrics on innate mindfulness (CAMS-R) and symptoms of anxiety (GAD-7) and depression (PHQ-9). Preliminary bivariate correlations were performed to explore relationships between trait mindfulness and psychological and clinical characteristics.

RESULTS: Patients (61% male, mean age = 59) presented primarily with advanced stage (72% Stage III or higher) cancers of oral, oropharyngeal, laryngeal or other origin. The average patient reported mild levels of anxiety and depression, and relatively high levels of trait mindfulness (CAMS-R mean = 31; scores range from 10 - 40). Higher trait mindfulness was related to lower reports of anxiety ($r = -.411$, $p = .033$), but not depression. Trait mindfulness was not associated with stage of disease on presentation, age, pain rating, or pack-years of tobacco use. Interestingly, though prior research suggests the presence of gender differences in trait mindfulness, no differences between men (mean score = 30) and women (mean score = 31) were observed in this sample.

CONCLUSIONS: In a pilot sample of H&N cancer patients, those presenting with higher trait mindfulness endorsed fewer symptoms of anxiety near the time of diagnosis. We did not observe significant relationships between mindfulness and depressive symptoms, stage of disease, age, pain ratings, or pack-years. This suggests the potential for trait levels of mindfulness to assist in lessening experiences of psychological distress, particularly anxiety, after the diagnosis of H&N cancer. This preliminary study facilitates the development of future behavioral interventions for H&N cancer patients, which may include strategies that enhance existing mindfulness skills or other complementary coping methods. Ongoing research with a larger sample will further examine trait mindfulness to better understand its influence on psychological and treatment outcomes among H&N cancer patients. Funding support provided by a University of Louisville Multidisciplinary Research Grant.

S009: MULTIMODAL ANALGESIA IN OUTPATIENT HEAD AND NECK SURGERY: A FEASIBILITY AND SAFETY STUDY

Justin Oltman, BSE[1], Oleg Militsakh, MD[2], Mark D'Agostino, MD[3], Brittany Kauffman, BSN[2], Aru Panwar, MD, FACS[4]; [1]College of Medicine, University of Nebraska Medical Center, Omaha, Nebraska, [2]Head and Neck Surgery, Nebraska Methodist Hospital,

Omaha, Nebraska, [3]Department of Anesthesiology, Nebraska Methodist Hospital, Omaha, Nebraska, [4]Division of Head and Neck Surgery, University of Nebraska Medical Center & Nebraska Methodist Hospital, Omaha, Nebraska

Background: Narcotic based analgesia strategies contribute to peri-operative side effects such as nausea, pruritis, constipation and other adverse events. Additional concerns about opioid prescriptions and their contribution to an emerging epidemic of opioid dependence and abuse, has prompted a re-examination of pain management strategies and a search for alternative multimodal analgesia protocols.

Multimodal analgesia protocols incorporate non-narcotic agents to reduce the need for opioid agents and to avoid adverse outcomes. While these protocols have been assessed and established in surgical specialties such as orthopedics and gastrointestinal surgery, the feasibility and safety of this approach has not been explored for outpatient head and neck surgery.

Objectives:

- To evaluate the feasibility and safety of a non-narcotic multimodal analgesia protocol for outpatient head and neck surgical procedures
- Identify impact of the multimodal analgesia protocol on post-operative pain perception scores
- Assess patient satisfaction with the alternative pain management strategy

Methods: Retrospective evaluation of prospectively collected data on adult patients (n=48) who underwent outpatient thyroid, parathyroid, and parotid surgery between July and September 2016, utilizing a multimodal analgesia strategy. All patients received pre-operative counseling about the pain management strategy.

Multimodal analgesia revolved on pre-operative administration of a combination of acetaminophen, non-steroidal anti-inflammatory drugs (NSAIDs), and gabapentin; prudent use of intra-operative narcotics; and reliance on NSAIDs and acetaminophen for post-operative analgesia. Patients who demonstrated poor pain control with this strategy were allowed use of narcotics as clinically indicated.

Details were recorded on patient characteristics, operative variables, and in-hospital and post-discharge use of analgesics. Dedicated health coaches recorded patient responses to a standardized questionnaire utilizing validated tools to assess outcomes including 'pain perception scores', 'Overall Benefit of Analgesia Score (OBAS)', and incidence of failure of multimodal analgesia. Patient satisfaction scores with peri-operative pain management experience were recorded.

Results: Forty-eight patients underwent outpatient thyroid, parathyroid or parotid surgery in an outpatient setting with use of multimodal analgesia protocol. On a 10-point rating scale, patients reported a low resting pain perception score (mean 1.73, observed range 0-7). Similarly, the mean of the 'peak' post-operative pain score remained low as well (mean 3.58, observed range 0-8).

The OBAS assessment for composite effectiveness of analgesia in optimizing pain control; minimizing nausea, itching, freezing, diaphoresis, and dizziness; and as a measure of patient satisfaction with pain management, indicated effectiveness of the multimodal analgesia strategy (mean score 2.27, observed range in patient cohort 0-9, permissible range 0-28 with low OBAS scores considered to be favorable).

Over 91.6% patients reported 'high' or 'very high' satisfaction with multimodal analgesia strategy. No complications related to bleeding, hematoma, significant adverse events, or re-admissions were observed.

Clinical Implications:

- Multimodal analgesia strategy is feasible and safe in patients undergoing outpatient head and neck surgery, and may reduce need for narcotic use and promote enhanced recovery
- Patients on multimodal analgesia protocol reported low pain perception scores, favorable OBAS assessment, and overall satisfaction scores
- Role of multimodal analgesia needs additional evaluation through comparative effectiveness assessment versus conventional pain management strategies

S010: COGNITIVE FUNCTION AND QUALITY OF LIFE IN PATIENTS WITH OROPHARYNGEAL CANCER

Amy M Williams, PhD, Jamie Lindholm, MS, CCCSLP, Farzan Siddiqui, MD, PhD, Tamer A Ghanem, MD, PhD, Steven S Chang, MD; Henry Ford Health System

Background: Cognitive functioning has been found to be related to substance abuse, depression, anxiety, and quality of life (QoL), as well as treatment adherence for rehabilitation and outcomes in patients with cancer. Previous longitudinal research has found that cognitive impairment significantly contributes to quality of life in patients with head and neck cancer. Additionally, both cognitive impairment and poorer quality of life have been associated with decreased overall survival in patients with head and neck cancers.

Objective: The current study seeks to examine the relationships between psychosocial variables, cognitive function, and QoL in patients with oropharyngeal cancer prior to initiating cancer treatment. Additionally, it will determine if pre-treatment variables are associated with treatment adherence markers (i.e., time in radiation therapy, adherence to Tumor Board recommendations).

Methods: Seventy-one patients with oropharyngeal cancer completed the FACT-H&N, the Montreal Cognitive Assessment (MoCA), and a semistructured psychiatric interview with a Clinical Health Psychologist as part of pre-treatment assessment. Patient demographics, diagnosis, and treatment were extracted via chart review.

Results: As would be expected, the number of depressive symptoms was negatively associated with QoL on the total FACT-H&N score (r=-.56, p<.001) and each of the FACT-H&N subscales (r=-.29 to -.58, p<.01). The total FACT-H&N score was positively associated with scores on delayed recall (r=.32, p<.01). Social wellbeing scores were positively associated with scores on the language and delayed recall subscales, and the overall MoCA score (r=.24, .28, and .24, p<.05, respectively). Emotional wellbeing and functional wellbeing subscales were positively associated with delayed recall scores (r=.24 and .39, p<.05, respectively). There were no significant associations between the physical wellbeing or the head and neck symptoms subscales and the subscales or overall score on the MoCA.

Lower MoCA scores were associated with not following Tumor Board recommendations (t = -3.08, p<.01), indicating that patients with lower MoCA scores were less likely to engage in treatment recommended by the Tumor Board following NCCN guidelines. In particular, lower scores on attention/concentration (t = -3.05, p<.01) and language (t = -2.68, p<.01) were associated with not following Tumor Board recommendations. Neither the QoL subscales nor the total score were associated with Tumor Board adherence. Patients score on delayed recall was negatively associated with the length of time in primary radiotherapy (r=-.30, p<.05). Lower scores on the total QoL score was associated with longer time in primary radiotherapy (r=-.45, p<.05). Neither cognitive function nor QoL scores were associated with adjuvant radiotherapy lengths.

Conclusions: Pre-treatment QoL and cognitive functioning are related at baseline. Additionally, these variables are associated with important treatment adherence makers, such as time in radiation therapy and adherence to Tumor Board recommendations. These adherence markers may indicate less treatment adherence and a negative prognostic value. Future research should examine mediating factors and the development of intervention to aid in adherence. Further, the current results argue for the importance of assessing for cognitive functioning and quality of life prior to treatment to aid in treatment planning and resource management for patients.

S011: CHARACTERIZING THE IMMUNE MICROENVIRONMENT OF PAPILLARY THYROID CARCINOMA

Casey Means, MD, Takahiro Tsujikawa, MD, PhD, Daniel Clayburgh, MD, PhD, Maisie Shindo, MD, Lisa Coussens, PhD; Oregon Health & Science University

Importance/Context: Papillary thyroid carcinoma (PTC) is a relatively common cancer, and in many patients follows an indolent course. However, in up to 30% of patients, recurrent disease may develop and require additional, often invasive, treatment. In other tumor types, tumor-immune interactions and the unique tumor microenvironment have emerged as important predictors of tumor behavior and targets for therapeutic intervention. However, the immune microenvironment in PTC is poorly understood; a better understanding of the PTC-immune system interaction may provide opportunities for therapeutic intervention and patient risk stratification.

Objective: To comprehensively analyze the immunologic microenvironment

of PTC, and to compare the immune profiles of pathologically aggressive and pathological indolent tumors.

Design: This retrospective study analyzed 40 archived PTC surgical samples with a unique multiplex immunohistochemistry technique that allows for 12+ cellular markers to asses a single slide from formalin-fixed, paraffin-embedded samples. Our novel panel was able to identify 9 unique immune cell types within in each sample, including CD8+ T cells, helper T cells, regulatory T cells, NK cells, B cells, CD66+ granulocytes, macrophages, mature dendritic cells, and mast cells. Multiplex IHC-stained images were analyzed with novel cell segmentation and "image cytometry" software to quantitatively characterize IHC signals for each sample, and compare immune profiles across the cohort.

Patients and Setting: 40 PTC patients with 5-year clinical follow up at Oregon Health and Science University.

Results: Our results indicate that patients with aggressive pathological features, including lymphovascular invasion and extrathyroidal extension, display a characteristically myeloid-inflamed immune microenvironment, enriched with mast cells and dendritic cells, compared to patients with indolent pathologic features. Patients with indolent pathologic features display a lymphoid predominance, enriched with CD8+ T cells. The presence of aggressive pathologic features was significantly predictive of the myeloid-inflamed profile ($p = .018$). Lymphoid-inflamed tumors have a significantly higher percentage of CD8+ T cells compared to myeloid inflamed tumors ($p = .003$). Within the myeloid-inflamed cluster, the tumors display significantly higher proportion of mast cells ($p < .0001$) and dendritic cells ($p = .01$) as a percentage of total CD45+ cells compared to lymphoid-inflamed tumors.

Conclusion and Relevance: Our data reveal distinct immune profiles associated with pathologically aggressive disease in PTC. Specifically, we have identified three specific immune cell types which are seen in differential abundance between aggressive and indolent disease. Our study is the first comprehensive assessment of the immune microenvironment in thyroid cancer and will serve as groundwork for both improving patient risk stratification and developing novel immunotherapies for PTC. Furthermore, our unique 12-panel multiplex immunohistochemistry platform can be expanded to multi-panel analyses of a wide range of cell biology targets in any tumor type, and thus has broad applications for cancer research.

S012: PREOPERATIVE PREDICTION OF EXTRANODAL EXTENSION IN METASTATIC PAPILLARY THYROID CANCER USING ULTRASONOGRAPHY

Daniah Bu Ali, MD, Fadi Murad, MD, Dominique Monlezun, MPH, Michael Serou, MD, Emad Kandil, MD; Tulane University School of Medicine

Introduction: The presence of extranodal extension in metastatic lymph nodes of papillary thyroid cancer; is associated with increased risk of persistent disease or recurrence and lower biochemical response to radioactive iodine. The aim of our study is to evaluate the usefullness of certain ultrasound features for preoperative prediction of extranodal extension in metastatic papillary thyroid cancer.

Methods: We retrospectively reviewed all patients who underwent neck dissection for metastatic papillary thyroid cancer by a single surgeon, over five years. Patients with positive lymph node metastasis were included in the analysis. The primary surgeon and an independent radiologist reviewed the preoperative ultrasounds of those patients. Patients were divided into two groups according to the presence or absence of extranodal extension. The following ultrasound features were included in the analysis, lymph node size, hilar replacement, hilar effacement, nodal matting, perinodal edema, cystic area, and vascularity.

Results: 43 neck dissections (40 patients) with positive lymph node metastasis were included in the analysis; 15 (34.9%) had extranodal extension. There was no difference in age or gender between the two groups. The mean size of lymph nodes was larger in the extranodal extension group compared to the negative group, 1.7 ± 0.8cm and 1.2 ± 0.5cm, respectively ($p=0.017$). Lymph node size more than 2 cm was significantly associated with extranodal extension (OR=8.67, 95%CI: 1.48-50.92, $p=0.017$, sensitivity 40%, specificity 92.9%, PPV 75%, NPV 74.3%, Accuracy 74.4%). The presence of perinodal edema showed significant association with extranodal extension (OR=5.50, 95%CI:

1.40-21.68, p=0.015, sensitivity 60%, specificity 78.6%, PPV 60%, NPV 78.6%, Accuracy 72.1%). On the other hand, there was no association between the presence of hilar replacement, hilar effacement, vascularity or cystic area with extranodal extension (p>0.05). In addition, we assessed its relation with BRAF mutation, which was not significant (P=1).

Conclusions: Demographic variables and BRAF mutation status were not predictive of extranodal extension in papillary thyroid cancer patients with positive lymph node metastasis. However, certain ultrasound findings were predictive of extranodal extension in these patients.

S013: LYMPH NODE DENSITY IS A PREDICTOR OF OUTCOME IN DIFFERENTIATED THYROID CANCER

Moran Amit, MD, PhD, Samantha Tam, MD, Mongkol Boonsripitayanon, MD, Mark Zafereo, MD; University of Texas MD Anderson Cancer Center

Background: Lymph node density (LND) has previously been reported to reliably predict recurrence risk and survival in head and neck cancer. This study was designed to validate the concept of LND in differentiated thyroid cancer (DTC).

Methods: Patients treated surgically for differentiated thyroid cancer at the University of Texas MD Anderson Cancer Center from 1997 through 2014 were retrospectively reviewed (n=869). Five-year overall survival (OS), disease-specific survival (DSS), disease-free survival (DFS), locoregional control and distant metastasis rates were calculated using the Kaplan-Meier method. LND (number of positive lymph nodes/ total number of excised lymph nodes) was subjected to multivariate analysis. Time-dependent receiver operating characteristic (ROC) curves, area under the curve (AUC) of the ROC curve, sensitivity, specificity, were calculated to determine which LND best defines different risk groups of DTC subjects.

Results: The study included 423 patients diagnosed as having DTC with nodal metastasis. The median follow-up was 42 months. The 5-year OS was 100% for patients with LND ≤ 0.19 compared to 87% for patients with LND > 0·19 (p<0·001). Similarly, the DFS was 100% for patients with LND ≤ 0·19 compared to 92% for those with LND>0·19 (p=0·01). Patients with lateral neck regional metastasis (i.e., N1b) and LND > 0·19 had a 5-years OS rate of 63% compared to 82% for those with lateral neck regional metastasis and LND ≤ 0·19 (p=0·02); however, for patients with central compartment neck metastasis (i.e., N1a) and LND > 0·19 the 5-years OS rate was 81% compared to 86% for patients with central compartment neck metastasis and LND ≤ 0·19 (p=0·8). Finally, we incorporated LND with a cutoff of 0.19 to the TNM staging system for patients over the age of 45 with lateral neck metastasis. This analysis revealed that a modified system based on LND ratio successfully estimated survival measures.

Conclusion: This study validates the reliability and applicability of LND as a predictor of outcomes in DTC. LND can potentially assist in identifying patients with poor outcomes and therefore for whom closer follow-up may be warranted.

S014: TRENDS AND SAFETY OF OUTPATIENT THYROID SURGERY: A REVIEW OF 76,604 CASES IN THE AMERICAN COLLEGE OF SURGEONS NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM

Eamon J McLaughlin, MD[1], Jason A Brant, MD[1], Andres M Bur, MD[2], John P Fischer, MD[3], Jinbo Chen, PhD[4], Steven B Cannady, MD[1], Ara A Chalian, MD[1], Jason G Newman, MD[1]; [1]Department of Otorhinolaryngology, Hospital of the University of Pennsylvania, [2]Department of Otorhinolaryngology, Emory University, [3]Department of Plastic and Reconstructive Surgery, Hospital of the University of Pennsylvania, [4]Department of Biostatistics and Epidemiology, University of Pennsylvania School of Medicine

Objective: To investigate national trends in admission status after thyroid surgery in the United States and to evaluate the factors associated with 30-day unplanned readmission and reoperation.

Study Design: Retrospective review of national surgical database

Setting: American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP)

Methods: The ACS-NSQIP database was queried for patients that underwent a partial or total thyroidectomy between 2005 and 2014. Outpatient surgery was defined as discharge on the day of surgery. Patient demographic information, unplanned hospital readmission and return to the operating room were reviewed. Risk factors were identified using logistic regression modeling.

Results: A total of 76,604 cases met inclusion criteria as described above. There were 1,473 (1.9%) patients who underwent reoperation and 477 unplanned 30-day readmissions (1.4%) for procedures performed since 2012. There was a significant positive trend in the percentage of thyroidectomy patients who underwent outpatient procedures by year of operation ($p<0.001$). This was true for both partial and total thyroidectomies ($p<0.001$). Outpatient procedures were not more likely to have unplanned readmissions or reoperations. Independent patient risk factors for unplanned readmission and reoperation included: current dialysis, chronic steroid use, unintentional weight loss, American Society of Anesthesiologists (ASA) class 3-4, and active bleeding disorders.

Conclusions: Over the past decade there has been a clear trend towards increasing outpatient thyroid surgery. Thyroid surgery performed as an outpatient was not found to be an independent risk factor for readmission or reoperation. Patients with serious chronic diseases, active bleeding disorders (including active anticoagulation), and those with an ASA class 3-4 are at increased risk of unplanned readmission or reoperation and should have their surgery performed on an inpatient basis.

S015: PREOPERATIVE VITAMIN D DEFICIENCY IS A PREDICTOR OF HYPOCALCEMIA FOLLOWING THYROIDECTOMY

Genival B de Carvalho, MD, Lina R Giraldo, MD, Hugo F Kohler, PhD, Joel A Novoa, MD, Luiz P Kowalski, PhD; A C Camargo Cancer Center

Introduction: Postoperative hypocalcemia is frequent after total thyroidectomy. The role of preoperative vitamin D levels in the pathogenesis of this condition is uncertain. We hypothesized that patients with preoperative vitamin D deficiency are more likely to suffer from postoperative hypocalcemia.

Methods: A retrospective chart review of patients undergoing total thyroidectomy at the A C Camargo Cancer Center between January, 2014 and December, 2015 was performed. Patients who underwent simultaneous parathyroidectomy were excluded. The study included patients who had a 25-hydroxyvitamin D levels obtained before surgery.

Results: We analyzed 1,119 patients submitted to total thyroidectomy who met the inclusion criteria. Variables included were demographic information, pre- and post-operative calcium and PTH levels, surgical information and symptomatic hypocalcemia. Hypocalcemia was defined by the presence of symptoms and by the difference in calcium levels at the measure points. Missing values were filled in by multiple imputation. We analyzed the impact of pre-operative vitamin D on calcium and PTH variation through the Sobel-Goodman mediation test. Preoperative vitamin D was categorized as sufficient or deficient. In patients with vitamin D deficiency, there wasn't a significant difference variation in PTH variation at both time points ($p=0.3099$). In patients with vitamin D sufficiency, there was a significant difference in PTH levels at both time points ($p=0.001$). In a logistic regression, an interaction term between PTH level preoperative and vitamin D is highly significant. By a mediation test, we demonstrate that the effect of pre-operative vitamin D level on post-operative hypocalcemia is 20.45% of the PTH variation effect.

Conclusions: Preoperative deficiency of vitamin D is an independent risk factor for post thyroidectomy hypocalcemia, but not for permanent hypoparathyroidism.

S016: THE UTILITY OF INTRAOPERATIVE PTH IN THE SETTING OF PRE-OPERATIVE IMAGING LOCALIZATION AND CONCORDANT OPERATIVE FINDINGS.

Shivani Shah-Becker, MD, David Goldenberg, MD; Penn State Milton S. Hershey Medical Center

Background: In patients with primary hyperparathyroidism caused by parathyroid adenoma, the introduction of rapid intraoperative parathyroid hormone (PTH) level testing has allowed surgeons to assess for biochemical cure of the disease prior to the patient leaving the operating room. Many surgeons now perform this test routinely during parathyroidectomy. However, it has been suggested that if a patient has successful pre-operative localization of a parathyroid adenoma for minimally invasive parathyroidectomy (MIP), performing intra-operative PTH testing may be unnecessary and increase operative time and cost. In fact, if the hormone level does not decrease according to established criteria, the

results can complicate intraoperative decision-making and potentially lead to unneeded neck exploration.

Objectives:

1. To determine the added value of intraoperative parathyroid hormone levels during minimally invasive parathyroidectomy with localizing and concordant pre-operative imaging.
2. To evaluate the incidence of unnecessary neck exploration based on results of intraoperative PTH testing.

Methods: A retrospective chart review was performed looking at patients who underwent successful minimally invasive parathyroidectomy with a single surgeon at a high volume institution. Success of surgery was determined by postoperative resolution of symptoms and normalization of calcium levels. Patients were only included if they had localizing pre-operative imaging and consistent intraoperative findings.

Results: Fifty-two patients were identified who met inclusion criteria over a 4 year time-frame. Five of 52 (9.8%) patients had successful surgery with post-operative normocalcemia, but did not have intraoperative PTH levels consistent with biochemical cure. One of these patients (1.9%) underwent bilateral neck explorations. In 2 cases (3.8%), inadequate decrease in the intraoperative PTH level appropriately prompted further exploration which was necessary for successful surgery.

Discussion: Even in a select group of patients with primary hyperparathyroidism secondary to parathyroid adenoma with localizing pre-operative imaging and concordant intraoperative findings, obtaining routine intraoperative PTH levels is still beneficial in ensuring successful surgery. However, surgeons should be aware of the limitations of rapid PTH testing and risk of unnecessary neck exploration.

S017: THE ROLE OF ADJUVANT EXTERNAL BEAM RADIOTHERAPY IN LOCALLY ADVANCED DIFFERENTIATED THYROID CANCER

Samantha Tam, MD, Moran Amit, MD, PhD, Mongkol Boonsripitayanon, MD, Mark Zafereo, MD; University of Texas MD Anderson Cancer Center

Background: As the incidence of differentiated thyroid cancer rises, treatment paradigms have become increasingly defined. Despite this, locally advanced thyroid cancer, defined as stage T4 tumors, continues to be a challenging entity to manage. Due to its relatively higher rate of recurrence, postoperative therapy in the form of radioactive iodine (RAI) is recommended for these patients by practice guidelines. However, the role of external beam radiation therapy (EBRT) is less well defined. This study aims to investigate the role of EBRT in locally advanced differentiated thyroid cancer.

Methods: Patients treated surgically for differentiated thyroid cancer at the University of Texas MD Anderson Cancer Center from 1997 through 2014 were retrospectively reviewed. Patients with pathologic T4 disease undergoing RAI with or without EBRT were included. Primary outcome measure was disease-free survival (DFS), defined as the time from primary surgery to locoregional recurrence, distant metastasis, or death related to disease. Analysis included Kaplan-Meier estimates to identify differences in DFS between treatment modalities. Fisher's exact test was used to determine differences in patients who have complete response to adjuvant therapy, defined as no evidence of biochemical or structural disease at 6 months.

Results: Of 869 identified patients, 31 patients with pathologic T4 disease who underwent RAI treatment with or without EBRT were included in the analysis. Median follow-up was 26 months (range=11-140 months). Eighteen (58%) patients underwent RAI alone whereas 13 (42%) patients underwent RAI with adjuvant EBRT. There was no difference in these two groups regarding structures invaded due to extrathyroidal spread. Five-year survival for patients undergoing RAI was 51.8% compared to 57.7% for those undergoing RAI and EBRT (p=0.87). In 2 (7%) patients, locoregional recurrence was the cause of failure, one had undergone both RAI and EBRT and one underwent RAI alone. Five (16%) patients failed due to new distant metastatic disease, of which 2 had undergone RAI and EBRT and 3 were treated with RAI alone. Six (19%) patients failed due to death from distant metastatic disease present at the time of initial presentation, half of which underwent RAI and EBRT and half RAI alone. Comparison of disease response at 6 months showed complete response in 6 patients (19%) undergoing RAI alone compared to 3 patients (10%) following RAI and EBRT (p=0.69).

Conclusion: The addition of EBRT to RAI

resulted in few locoregional recurrences in this cohort of locoregionally advanced disease. Failures were largely due to the development of new distant metastasis or death from progression of existing distant metastases.

S018: THE AMERICAN COLLEGE OF SURGEONS NSQIP RISK CALCULATOR DOES NOT ACCURATELY PREDICT OUTCOMES IN PATIENTS UNDERGOING MICROVASCULAR HEAD AND NECK RECONSTRUCTION: A STUDY OF 555 CASES.

Yue Ma, MD[1], Benjamin Laitman, PhD[2], Vir Patel, BS[2], Kian Bichoupan, PhD[2], Marita Teng, MD[1], Eric Genden, MD[1], Samuel DeMaria, MD[3], Brett A Miles, MD[1]; [1]Department of Otolaryngology Head and Neck Surgery, Icahn School of Medicine at Mount Sinai, New York, NY 10029, USA, [2]Icahn School of Medicine at Mount Sinai, New York, NY 10029, USA, [3]Department of Anesthesia, Icahn School of Medicine at Mount Sinai, New York, NY 10029, USA

Background: The use of microvascular free tissue transfer has increasingly become the preferred method of reconstruction for large tissue defects. Although researchers desire to seek a simple and reliable model to predict surgical outcomes, there is no validated risk calculator for head and neck microvascular reconstructive surgery. The American College of Surgeons (ACS) National Surgical Quality Improvement Program (NSQIP) Surgical Risk Calculator (SRC) is a universal surgical risk calculator designed to guide both surgical decision-making and informed consent. The purpose of this study is to evaluate the accuracy of this SRC in predicting surgical outcomes in patients undergoing microvascular head and neck reconstruction.

Methods: We performed a retrospective chart analysis of 555 patients who received free tissue transfer at a single institution between 2007 and 2016. We then compared the predicted complication rate derived from the ACS NSQIP SRC with the actual observed complication rate. The SRC's ability to discriminate between patients with and without corresponding complications was described using the area under a receiver operating characteristic curve (AUC). AUC values closer to 1.0 indicate a superior test at predicting outcomes. The relationship between estimated and observed hospital length of stay (LOS) was assessed using a Spearman correlation. Statistical analysis was performed with SPSS (IBM, New York, NY). P-values ≤0.05 were deemed statistically significant.

Results: 419 Myocutaneous, 127 osseous (80 fibula, 45 scapula, and 2 iliac crest), and 2 omental free flaps were included in this study. Based on the NSQIP SRC definition for complications and serious complications, 45.1% (n=250) developed a postoperative medical or surgical complication and 34.6% (n=192) developed a serious complication. The SRC predicted risk for the patients that actually had complications was no different than the patients who did not experience any complications (29.1%, CI: 28.2-30.0 vs 26.8%, CI: 26.0-27.6). Similar findings were present for the group that had serious complications (21.4%, CI: 20.4-22.5 vs 19.5%, CI:18.8-20.2). All perioperative complications evaluated had AUC values ≤0.75, ranging from 0.480 to 0.728. SRC predicted hospital LOS was 9.4 days (CI: 9.2-9.6), which did not strongly correlate with the observed LOS of 12.0 (CI: 11.2-12.8; $r = 0.267$, $p<0.01$).

Conclusion: The ACS NSQIP SRC is a poor predictor for surgical outcomes in patients undergoing microvascular head and neck reconstruction. The SRC also does not accurately predict hospital length of stay in this population. Our study is unique because it represents the largest study on this topic and evaluates various types of free tissue flaps. Patients undergoing microvascular head and neck reconstruction surgery are a unique surgical population. Head and neck surgery specific risk calculators to predict and improve outcomes are needed.

S019: ALCOHOL ABSTINENCE CONTRACTING IMPROVES POSTOPERATIVE OUTCOMES IN ALCOHOL MISUSERS WITH FREE FLAP RECONSTRUCTION OF THE HEAD AND NECK

Azeem Kaka, MD, Songzhu Zhao, BS, Enver Ozer, MD, Amit Agrawal, MD, Stephen Kang, MD, James Rocco, MD, PhD, Ricardo Carrau, MD, Theodoros Teknos, MD, Matthew Old, MD; The James Cancer Hospital and Solove Research Institute, Wexner Medical Center at The Ohio State University.

Background: Recent studies have shown that patients who drink at least 60 grams (g) of alcohol (4-5 standard US drinks) per day have a three-fold increase in postoperative complications.

Alcohol misusers have been shown to have longer hospital stays, increased need for second operations, and a higher risk of withdrawal as compared to nonusers. In general, the duration of abstinence to counteract the negative effect of alcohol ranges from one to eight weeks, depending on organ system. The risk of alcohol withdrawal is known to diminish after one week of abstinence. Given this compelling data, along with the high prevalence of alcoholism in the head and neck population, we implemented a novel clinical protocol for alcohol misusers in conjunction with the Department of Internal Medicine, nursing and social work.

Protocol: Patients who are misusers of alcohol are educated and asked to sign an alcohol abstinence contract and agree to be abstinent of alcohol prior to surgery, at a minimum of 7 days. They are informed about possible signs/symptoms of withdrawal and are given a script for a benzodiazepine (Lorazepam) to treat withdrawal issues. Several safety nets are present ranging from admission to detox facilities to preoperative inpatient admission for appropriate medical care of the withdrawal if patients are too high risk to undergo abstinence at home.

Methods: Under IRB approval, we compared outcomes in patients requiring free flap reconstruction who had undergone a cessation contract (n=15) to those who were abusers of alcohol prior to the inception of the protocol (n=30). Previous abusers of alcohol were found by searching our surgical logs for patients who reported consuming greater than 7 US drinks/day. Comparisons between non-contracted and contracted groups for continuous measures were made via non-parametric Wilcoxon two-sample tests. Categorical measures were compared between non-contracted and contracted groups by Chi-square test or Fisher exact test.

Results: In both cohorts, no statistically significant difference was found between initial staging, surgery performed and preoperative morbid conditions. Our contracted group had an average of 14.8 days of abstinence prior to surgery. Abstinence was achieved at home for 11 of our patients, in a detox facility for 2 patients and with pre-operative admission for 2 patients. In univariate comparisons between the groups, the rate of alcohol withdrawal (63% vs 0%, p<0.0001), delerium (73% vs 0%, p<0.0001), cellulitis (43% vs 7%, p=0.016) and wound dehiscence (67% vs 13%, p=0.0007) was higher in the non-contracted group vs the contracted group. Further, hospital stay (13 days vs 9 days, p<0.0001) and time lapse to starting adjuvant radiation therapy (60 days vs 42.5 days, p=0.001) was significantly longer in the non-contracted group vs the contracted group. These early results are encouraging and promote the necessity of personal responsibility in the head and neck patient.

Conclusion: An alcohol abstinence program for surgically managed patients improves outcomes and is safe and effective. /

S020: OUTCOMES AND COST IMPLICATIONS OF MICROVASCULAR RECONSTRUCTIONS OF THE HEAD AND NECK

Larissa Sweeny[1], Eben Rosenthal[2], Tyler Light[3], Jessica Grayson[1], Daniel Petrisor[3], Scott Trobb[3], Benjamin Greene[1], William Carroll[1], Mark Wax[3]; [1]UAB, [2]Stanford, [3]OHSU

BACKGROUND: Reconstruction of complex defects in the head and neck is best accomplished by free tissue transfer. For many defects the choice of tissue depends on many variables and outcomes are similar among these different reconstructive options. With clinical outcomes being similar, cost is a variable of consideration. To this end, we reviewed the outcomes of microvascular free tissue transfers for reconstruction of complex defects in the head and neck and the impact on healthcare cost.

STUDY DESIGN: Retrospective study.

METHODS: Patients undergoing microvascular free tissue transfer operations between 2010-2015 at two tertiary care institutions (n=1,315). Variables reviewed: defect location, indication, T classification, surgical details, duration of the operation and hospitalization, and complications (major, minor, medical). A convenient sample was selected for overall (operative and inpatient admission) cost analysis (n=200).

RESULTS: The shortest operative times were: RFFF (6.5 hours) and OCRFFF (7.0 hours) while fibula flap were the longest (8.2 hours) (p<0.001). Duration of hospitalization varied by donor tissue: scapula (7.3 days), RFFF (8.4 days), OCRFFF (9.3 days), latissimus free flap (12.4 days) and fibula (10.5 days)

(p<0.001). Operations lasting <8 hours, had shorter duration hospitalization (8.9 days) than operations lasting >8 hours (10.1 days) (p=0.006). Age >60 correlated with operations lasting >8 hours (p=0.03). Complication rates were lowest for RFFF (39%), ALT (45%), rectus (46%) and OCRFFF (45%). Rates were highest for scapula (75%) and fibula (58%) (p=0.01). For soft tissue defects, rectus had greatest mean overall cost ($197,340) compared to RFFF ($139628) and ALT ($133,764)(p<0.01). For bony reconstructions mean overall costs were similar between OCRFFF ($135,111) and fibula ($136,025)(p=0.14). Mean overall costs were similar independent of time: <8 hrs ($129,574) compared to >8 hrs ($145,900)(p=0.10). Type of complication correlated with differences in mean overall cost: minor ($121,361), medical ($145,471) and major ($161,549)(p=0.03). Revision of the anastomosis was associated with greater mean overall cost for both salvage of the flap ($177,356) and total loss of the flap ($160,735) compared to if no revision was required ($135,915) (p=0.05).

CONCLUSION: With increasing emphasis on cost effective healthcare, there is a need for critical reviews of current practices and the impact clinical outcomes have on cost. With a variety of options available to reconstruct similar head and neck defects, costs may be a factor to consider in the reconstructive choice.

S021: SHORTER LATENCY BETWEEN RADIATION THERAPY AND SALVAGE LARYNGOPHARYNGEAL SURGERY INCREASES COMPLICATION RATES FOLLOWING MICROVASCULAR FREE TISSUE TRANSFER

Chase M Heaton, MD, Rahul Seth, MD, P. Daniel Knott, MD; University of California - San Francisco

Introduction: Organ sparing primary chemoradiation therapy is commonly employed in the treatment of advanced laryngeal malignancy. Salvage surgery performed for persistent/recurrent disease and organ dysfunction is often associated with the use of free tissue transfer. It is well known that the risk of surgical complications increase when operating in a radiated field. An investigation is needed to assess whether shorter latency between radiation and salvage surgery affects reconstructive outcomes.

Methods: This case series was conducted at a tertiary oncologic medical center with accrual of patients from 2012 to 2015, who underwent salvage laryngectomy or laryngopharyngectomy for persistent/recurrent disease, or a dysfunctional larynx following radiation +/- chemotherapy. The main study variable was the latency between conclusion of radiation therapy and performance of salvage surgery. The primary outcome was incidence of postoperative complications, and secondary outcomes included need for a second procedure, time to resumption of oral (PO) feeding, and hospital length of stay.

Results: Twenty-three patients met inclusion criteria. Seventeen (73.9%) were men. The mean age was 62.3 years (median 62). Sixteen (69.5%) patients were treated with chemotherapy in addition to radiation. Salvage surgery was performed in 6 (26%) for persistence, 10 (43.5%) for recurrence, and 7 (30.5%) for a dysfunctional larynx. The average time from end of treatment to salvage surgery for all patients was 38.7 months.

There were 14 (60.1%) laryngectomy defects and 9 (39.1%) laryngopharyngectomy defects. Majority of the defects (19, 83%) were reconstructed with an anterolateral thigh free flap; the remaining were reconstructed with a radial forearm free flap. There were no partial or complete flap failures, and no flap takebacks.

Seven (30.5%) patients experienced a complication – 6 minor complications requiring local wound care and/or NPO status, and 4 major complications requiring a second procedure. The average time from end of treatment to surgery for patients who experienced a complication was 7.9 months, as compared to 52.3 months for patients who did not have any complications. Of the 11 patients who were operated on within 12 months of completing treatment, 6 (55%) experienced a complication; of the 12 patients operated on at least 12 months after treatment completion, only 1 (8%) experienced a complication (p=0.05).

The average length of stay (LOS) for patients who did not experience a complication was 8.2 days. Patients who had a complication had an average LOS of 26.9 days. Average time to PO was 20.3 days for patients who did not have a complication, as compared to 50.5 days for patients who had a postoperative complication.

Conclusions: Shorter latency between

the end of radiation and salvage laryngopharyngeal surgery with free tissue transfer reconstruction affects outcomes. Patients operated on within 12 months of end of treatment were more likely to have a postoperative complication. Complications resulted in longer LOS and time to PO feeding. Reconstructive surgeons can use this information to help guide preoperative patient counseling and assess risk of postoperative complications.

S022: DOES DECREASING ANTIBIOTIC DURATION PREVENT INFECTIONS IN HEAD AND NECK - FREE FLAP PATIENTS? A NOVEL PROTOCOL PUT TO THE TEST

Dziegielewski T Peter, MD, FRCSC, Sanjeev Balamohan, MD, Dustin Lang, MD, FRCSC, Patrick J Antonelli, MD, Raja Sawhney, MD, MFA, Brian Boyce, MD; University of Florida

Importance: Prophylactic antibiotics in head and neck-free flap surgery has come under scrutiny over the last decade. Traditionally surgeons kept patients on antibiotics for long periods of time without any proven benefits to the patient. With time, the pendulum has swung to shorter courses with the hope of maximizing surgical outcomes while minimizing harm.

At the University of Florida a prospective protocol was devised to minimize antibiotic use in head and neck-free flap patients in an attempt to lower antibiotic resistance rates decrease antibiotic related complications and improve infection rates. This protocol was established by a multidisciplinary panel and was based on hospital antibiograms and best available evidence.

Objective: To determine if decreasing the duration of prophylactic antibiotic use in head and neck-free flap patients will: decrease infection rates, lower hospital antibiotic resistance and decrease antibiotic-related complications.

Design: Retrospective data collection of a prospective protocol with a historical cohort comparison.

Participants: Patients undergoing head and neck-free flap surgery at the University of Florida were evaluated daily as inpatients and weekly as outpatients for signs of infections. From 2012-2014 patients were given prolonged courses of antibiotics (> 7 days) using clindamycin-based regimens. From 2014-2015 a novel prophylactic antibiotic regimen was implemented and followed prospectively. Patients received ampicillin-sulbactam for 23.9 hours peri-operatively if not previously radiated and for 72 hours if previously radiated. Patients were assessed twice daily by established criteria for signs of surgical site or distant infections and data was recorded in standardized progress notes. For the first 30 days post-discharge patients were followed at least weekly and assessed for infection using the same criteria.

Setting: Tertiary care academic referral center

Outcome Measures: The primary outcome measure was the overall infection rate. This was broken down into reconstructed site/neck, flap donor site and distant site infections. Secondary outcomes were antibiotic resistant rates in the post-operative unit before and after implementing the protocol, infection rates as inpatients and outpatients, as well as antibiotic-related complication rates.

Results: 220 consecutive patients were reviewed. 131 patient received a prolonged course of antibiotics and 89 received a shortened (new protocol) course of antibiotics. The overall infection rate was 21% for the prolonged antibiotic regimen and 18% for the shortened course ($p>0.05$). There were 50% less surgical site infections in the shortened course group ($p=0.02$), no difference in distant site infections. Antibiotic resistance rates were 33% less in the shortened course group ($p=0.02$). Infections in the shortened course group were more likely to occur as outpatients ($p=0.03$). There was no significant difference in antibiotic complication rates. The post-op care unit antibiogram changed over the course of the trial, with 20% lower bacterial resistance rates. Factors found to increase the risk of infection in a multivariate analysis included: previous radiation, infected surgical site pre-op, diabetes, and discharge to a ($p<0.05$).

Conclusion: Shorter courses of prophylactic antibiotics in head and neck-free flap patients do not increase infection rates and may help decrease antibiotic resistance.

S023: OUTCOMES AND RELIABILITY OF THE VENOUS FLOW COUPLER IN THE POSTOPERATIVE MONITORING OF HEAD AND NECK FREE FLAPS

Rance J Fujiwara, BS[1], Jacqueline M Dibble, APRN[2], Scott Larson, MD[3], Saral

Mehra, MD, MBA[1]; [1]Yale University School of Medicine, [2]Yale-New Haven Hospital, [3]Benefis Hospitals

Introduction: Early recognition of vascular compromise is associated with improved rates of free flap salvage. The implantable Cook-Swartz Doppler probe is most commonly placed at the arterial anastomosis, despite the fact that venous thrombosis is the most common cause of vascular compromise in free flap reconstruction. The venous anastomotic flow coupler combines a venous anastomotic coupler and implantable Doppler probe to assess venous patency at the anastomotic site; few studies have been conducted on its utility in head and neck free flaps.

Objective: To describe the accuracy and reliability of the venous flow coupler in postoperative monitoring of head and neck free flaps, compare findings to an implantable arterial Doppler probe, and trend performance over time.

Study design: Retrospective single-institution study

Methods: Both the venous flow coupler and implantable arterial Doppler probe were employed in 89 consecutive patients undergoing head and neck free flap reconstruction from April 2015 to August 2016. Positive Doppler events were defined as loss of arterial or venous signal. All flaps were also evaluated by scheduled physical exam (pin-prick) to identify false-negatives and to determine whether signal loss was a true positive (necessitating return to operating room) or a false positive. Sensitivity, specificity, false-positive rate (FPR), and false-negative rate (FNR) for each device were recorded to compare reliability. The association between increased flow coupler usage and performance was also analyzed.

Results: Nine patients (10.1%) required OR takeback, 8 due to venous thrombosis and 1 due to arterial thrombosis. Permanent signal loss (PSL) occurred in the flow coupler in all 9 takebacks; PSL occurred in the arterial Doppler only in the single case of arterial thrombosis. For the flow coupler, sensitivity was 100%, specificity 81.1%, FPR 18.9%, and FNR 0.0%. For the arterial probe, sensitivity for microvascular compromise was 11.1%, specificity 97.3%, FPR 2.7%, and FNR 88.9%. There was a statistically significant trend towards decreased false-positive events with increased flow coupler usage (p=0.008). Flap salvage rate for flow coupler events was 7/9 (77.8%), and for arterial Doppler events was 0/1 (0.0%). No patients were returned to OR with findings of normal microvascular flow.

Conclusion: The flow coupler has very high sensitivity in identifying vascular compromise compared to the arterial Doppler probe, particularly in cases of venous thrombosis resulting in an excellent salvage rate of compromised free flaps. There is a moderate FPR, but this decreases significantly with increased usage and, when supplemented with proper physical examination, does not lead to unnecessary OR takebacks. The flow coupler can be a valuable tool in postoperative monitoring of head and neck free flaps.

S024: COMPARISON OF THE SUBMENTAL ISLAND ARTERY PEDDLED FLAP AND THE FOREARM FREE FLAP FOR THE RECONSTRUCTION OF DEFECTS OF THE HEAD AND NECK

Nawaf Aslam-Pervez, MD, DDS, Steven Caldroney, MD, DDS, Amal Isiah, MD, PhD, Joshua E Lubek, MD, DDS, FACS; University of Maryland

Introduction: The submental artery island pedicled flap (SMIF) is an underutilized alternative for reconstruction of head and neck defects following tumor ablation. The SMIF possesses the same ideal qualities as the forearm free flap, obviating the need for specialized skills for microvascular anastomosis, a second donor site, shorter operative time and duration of hospital stay.

The purpose of this study was to perform a comparative reconstructive outcomes evaluation based on surgical site and ablative defect volume in patients reconstructed with a SMIF versus those reconstructed using the forearm free flap.

Material and methods: Retrospective chart review of all consecutive patients reconstructed with a SMIF from July 2010 through July 2016 at a tertiary care center. A comparative cohort of radial and ulnar forearm free flaps was selected based upon similar ablative volume defect and surgical site. Data analyzed included: pathology, hospital duration, operative time, blood loss, flap volume and defect size, hospital disposition, speech and swallowing function, tumor recurrence and ECOG performance. All statistical comparisons were assessed by ANOVA.

Results: 12 patients reconstructed with

a SMIF were identified and compared with 12 patients reconstructed either with a radial or ulnar forearm free flap with a similar matched ablative volume defect. Average age was 61.8 years (SMIF) vs. 57.9 years (FFF). Most common defect was located in tongue and floor of mouth. Squamous cell carcinoma was the most common pathology identified. Flap volumes were similar 38.79 ml (SMIF) vs. 39.77 ml (FFF). Significant comparative outcomes identified with SMIF reconstruction vs. FFF included; shorter anesthesia times (815 vs. 1209 min; P < 0.001), operative times (653 vs. 1031 min; P < 0.001) and blood loss (223 vs. 398 ml; P= 0.04). Post-operative ECOG performance score increased greater for FFF than for SMIF (+0.33 vs. +1.25; P=0.0019). Complication rates were lower for the SMIF (0.17/patient vs. 0.42/patient) but were not statistically significant. There were no significant differences in speech intelligibility. One patient in each cohort remained feeding tube dependent. One patient in the SMIF cohort developed recurrence at the local surgical site. Mean follow-up was 15.5 months.

Conclusion: This is the first study to compare the submental artery island artery flap versus the forearm free flap for reconstruction of oral cavity defects. The SMIF is a viable surgical option as compared the FFF that can be considered oncologically safe in the N0 neck, allowing for an excellent esthetic reconstruction, with decreased operative time and recipient and donor site morbidity.

S025: SARCOPENIA IS AN INDEPENDENT NEGATIVE PROGNOSTIC INDICATOR FOR WOUND COMPLICATIONS AFTER TOTAL LARYNGECTOMY

Virginie Achim, MD, Jasper Bash, Alia Mowery, Alexander Guimaraes, MD, Ryan Li, MD, Josh Schindler, MD, Mark Wax, MD, Peter Andersen, MD, Daniel Clayburgh, MD, PhD; Oregon Health and Science University

Introduction: Post-operative wound complications account for the majority of complications after total laryngectomy. These lead to increased length of hospital stay, increased hospital costs, and delay in initiation of adjuvant therapy when indicated. Recently, sarcopenia, defined as loss of skeletal muscle mass, has been identified as a predictor of post-operative complications in patients undergoing major surgery. However, sarcopenia has not been assessed in head and neck surgery patients. We aim to determine the incidence of sarcopenia in patients with squamous cell carcinoma (SCC) undergoing total laryngectomy (TL) and evaluate its impact on the development of post-operative complications.

Methods: We retrospectively reviewed 122 patients with SCC who underwent TL and identified 70 patients with cross-sectional abdominal CT imaging obtained pre-operatively. Measurements of abdominal wall and paraspinal musculature at L3 were performed and normalized for height. Previously defined sex-specific cutoff values were used to define sarcopenia as a skeletal muscle index < 52.4cm2/m2 in men and 38.5 cm2/m2 in women. Patient demographics including age, gender, smoking history, Charlson Comorbidity Index (CCI), prior radiation history, tumor stage, BMI, and pre-operative albumin were collected. Post-operative complications including all complications, wound-related complications, and fistula/leak were determined. Chi-square analysis and Fischer's exact test were performed with a p value < 0.05 indicating statistical significance.

Results: Sarcopenia was identified preoperatively in 77% of patients. There was no statistical significance between the sarcopenic group and the non-sarcopenic group in terms of age, gender, smoking status, CCI, prior radiation therapy, stage, pre-operative albumin, or use of a free flap for reconstruction. Thirteen patients (24%) in the sarcopenia group developed a pharyngocutaneous fistula compared to 0 (0%) in the non-sarcopenic group (p=0.03). Similarly 69% of patients in the sarcopenia group developed any complication versus 25% in the non-sarcopenia group (p=0.003) while 50% of patients in the sarcopenic group developed a wound complication compared to 13% in the non-sarcopenia group (p=0.009). On univariate analysis, sarcopenia was the only predictive factor of any complication (p=0.003), any wound complication (0.007), or a fistula or leak (p=0.031); age, gender, BMI, smoking status, CCI, prior radiation, stage, pre-operative albumin, or use of free flap for reconstruction were not significant. On multivariate analysis, all variables were non-significant except for sarcopenia for all complications (p=0.004) and any wound complication (p=0.015).

Conclusions: Sarcopenia is an

independent negative prognostic indicator for the development of all complications, wound complications, and development of a pharyngocutaneous fistula after total laryngectomy for the treatment of SCC. It is a more reliable predictor than smoking history, radiation history, BMI, or pre-operative albumin. Identification of sarcopenic patients pre-operatively is vital, and pre-operative nutritional optimization may play an important role in decreasing the rate of post-operative complications in this patient population.

S026: EFFECT OF A PERIOPERATIVE EDUCATION PROGRAM ON UNPLANNED READMISSION FOLLOWING TOTAL LARYNGECTOMY: RESULTS OF A PROSPECTIVE COHORT TRIAL

Evan M Graboyes, MD[1], Dorina Kallogjeri, MD, MPH[2], Sara Kukuljan, BS, RN, CCRC[2], Jan Zerega, BSN, RN[2], Linda Neal, MA, CCCSLP[2], Kelsey M Rosenquist, MA, CCCSLP[2], Brian Nussenbaum, MD, FACS[2]; [1]Medical University of South Carolina, [2]Washington University School of Medicine

Importance: Patients undergoing total laryngectomy (TL) are at high risk for 30-day unplanned hospital readmission. It is unknown what strategies might decrease the rate of unplanned readmission in this patient population.

Objectives: The primary outcome was to determine the rate of readmission following implementation of a comprehensive perioperative TL education program. Secondary objectives included determining the feasibility of the TL education program and its effect on patient knowledge and preparedness.

Design: Prospective cohort study.

Setting: Single academic, tertiary referral medical center.

Participants: The study population consisted of 47 patients undergoing a perioperative education program prior to TL between December 2015 and September 2016. All patients underwent TL with or without flap closure.

Intervention: Comprehensive perioperative total laryngectomy education program. Patients and their family member/friend acting as a "laryngectomy coach" accompanied them through the four components of the educational intervention: 1) preoperative speech-language pathology (SLP) evaluation and counseling session on TL physiology, stomal education, and alaryngeal voice rehabilitation, 2) preoperative hands-on interactive class with an ENT nurse educator covering stomal care basics and expected hospital course, 3) a total laryngectomy journal guide booklet detailing the preoperative in-hospital, and post-discharge course, and 4) a pre-hospital discharge written and hands-on assessment of discharge competency.

Main Outcomes and Measures: The primary outcome measure was the rate of 30-day unplanned hospital readmission. Secondary outcome measures included the rate of stomal/tracheo-esophageal puncture complication-associated readmissions, and change in TL knowledge (life readiness).

Results: The 30-day unplanned readmission rate for patients undergoing the perioperative TL education program was 17% (8/47 patients; 95% confidence interval 6.3%-27.7%). While the upper limit of the 95% confidence interval for the rate of 30-day unplanned readmissions is similar to the point estimate for the rate of 30-day unplanned readmissions from a historical cohort at our institution (26.5%), the lower bound of the CI shows that the true population rate of unplanned readmission after this education program can be as low as 6%. Patients in the TL education program had a 2.1% (1/47) rate of stomal/TEP complication-associated readmissions. Patients showed an increase in their TL knowledge (median improvement in TL knowledge test score 3 [out of 12]; 95% CI 2 to 4) and preparedness (median improvement in TL preparedness 3 [out of 10]; 95% CI 1 to 4) after undergoing the intervention.

Conclusions and Relevance: A comprehensive perioperative TL education program is feasible. Relative to previously published rates of 30-day unplanned readmission in patients undergoing TL, this program appears to have the potential to decrease the rate of 30-day unplanned readmissions.

S027: ORGAN PRESERVATION VERSUS PRIMARY SURGERY IN THE MANAGEMENT OF T3 LARYNGEAL AND HYPOPHARYNGEAL CANCERS

Sudhir V Nair, Dr, Swagnik Chakrabarti, Dr, Jai P Agarwal, Prof, Pankaj Chaturvedi, Prof; Tata Memorial Hospital

Background: T3 laryngeal and hypopharyngeal cancers consist of a

heterogenous group where treatment may be individualized based on clinical and radiological factors. Usually, these patients are managed by organ preserving non surgical treatment with chemoradiation. Surgery is usually reserved for salvage situations. In a subset of patients with dysfunctional larynx, bulky tumors, and those with significant medical comorbidities, upfront surgery with adjuvant radiotherapy or chemoradiotherapy is adviced in many centers. The aim of this study is to compare the oncologic outcome of surgical versus non surgical treatment modalities for patients with T3 laryngeal and hypopharyngeal cancers treated at our institution.

Materials and methods: A retrospective study was conducted on 119 patients of T3 laryngeal and hypopharyngeal cancers treated in our institution between periods of August 2008 to June 2015. Sixty seven patients underwent upfront laryngectomy followed by adjuvant chemoradiotherapy or radiotherapy alone while 52 underwent definitive chemoradiotherapy. The most common indication for upfront surgery was dysfunctional larynx. The primary endpoint was disease free survival (DFS). The secondary end points were larynx preservation (LP) and laryngectomy free survival (LFS).

Results: The median age of patients in the surgical and non surgical arms were 62 years and 55 years respectively. In the surgical arm (n = 67) , 63 patients underwent upfront laryngectomy followed by adjuvant treatment while 4 patients underwent induction chemotherapy prior to surgery and adjuvant treatment. Following surgery, 26 patients received chemoradiotherapy, 37 only radiotherapy and four did not receive any adjuvant treatment. In the nonsurgical arm (n =52), all patients received definitive chemoradiation.

The mean and median follow ups were 48 and 54 months respectively. The 5 year DFS in the surgical arm was significantly higher (72.5%) as compared to the non surgical arm (55.5%) (p=0.005). Locoregional control (LRC) was significantly better in the surgical arm(84.9%) as compared to non surgical arm(59.2%) (p=0.001). There was no significant difference in distant metastasis rate between the two arms (14.8% in surgical group versus 12.1% in non surgical group, p=0.69). In the nonsurgical arm, larynx preservation rate was 69.23% while laryngectomy free survival was 44.44%. The laryngeal salvage rate for local or locoregional failure was 100% and the nodal salvage rate was 81.8% for regional failure.

Conclusions: T3 laryngeal and hypopharyngeal cancers treated with upfront laryngectomy have an improved DFS when compared to those treated with non surgical modalities. Locoregional control is superior in the surgical arm with no difference in distant metastasis rate between the two arms. While organ preservation treatment remains as the standard of care in T3 laryngeal and hypopharyngeal cancers, primary surgery should be offered as an option for selected patients.

S028: THE ROLE OF SALVAGE SURGERIES IN RECURRENT HYPOPHARYNGEAL CANCERS AFTER PRIMARY ORGAN PRESERVATION THERAPY

Pei-Hsin Chu, MD[1], Tuan-Jen Fang, MD[3], Ngan-Ming Tseng, MD[2], Chun-Ta Liao, MD[3]; [1]Department of Otorhinolaryngology Head & Neck Surgery, Chang Gung Memorial Hospital, Linkou and Taipei, [3]Department of Otorhinolaryngology Head & Neck Surgery, Chang Gung Memorial Hospital, College of Medicine Chang Gung University, Linkou and Taipei, [2]Department of Radiation Oncology, Chang Gung Memorial Hospital, Linkou and Taipei

Importance: The high complication rate reduces the survival benefit of salvage surgery in recurrent hypopharyngeal cancers after primary organ preservation protocol. The role of salvage surgery in managing recurrent hypopharyngeal cancers remained undetermined.

Objective: To evaluate patients' survival differences among treatment options for recurrent hypopharyngeal cancers after primary organ preservation protocol and determine the role of salvage surgery.

Design: Retrospective cohort study, data collected from December 2007 to November 2013.

Setting: A tertiary referral medical center in Taiwan.

Participants: This study enrolled 323 newly diagnosed hypopharyngeal squamous cell carcinoma patients from December 2007 to November 2013. 114 were excluded for double cancers, receiving primary treatment

other than organ preservation trials, or non-curative intent treatment. There were 209 cases that have been received radiation therapy (RT) or chemoradiation therapy (CRT) for primary organ-preservation protocol was enrolled.

Main outcomes and Measures: 2-year and 5-year overall survival as well as recurrence survival (overall survival since recurrence).

Results: Among the 209 patients (mean age 54.2, 204 men and 5 women), the stage I~IV distribution were 2%, 5%, 11% and 82%, and the T status I~IV distribution were 6%, 16%, 18%, 60%, respectively. The median survival was 2.66±2.25 years, with 2 year and 5 year overall survival (OS) were 58% and 23% respectively. The 2-year survival from diagnosis in non-recurrence(N=133), locoregional recurrence (N=51) and distant metastasis groups were 69.2%, 47.1% and 24.0%, respectively (P<0.001). The 2-year OS for T1+T2 and T3+T4 were 88.9% and 50.0% (P=0.007). Among the 51 patients with locoregional recurrences, the median survival was 1.68±1.76 years, 2-year and 5-year recurrence survival rate were 31% and 6% respectively. The 2-year recurrence survival rate for salvage surgery and non-surgery were 45.7% and 0% (P<0.001). The 2-year recurrence survival rate for initial T1+T2 and T3+T4 were 66.7% and 23.5% respectively (P=0.005). There was no significant difference of recurrence survival in salvage surgery group for recurrence within 6 months or after 6 months (2-year recurrence survival rate 37.5% vs 63.0% P=0.103).

Conclusion and Relevance: For hypopharyngeal cancer patients who received CRT or RT as their primary treatment, salvage surgery provides better outcomes for locoregenal recurrences no matter happens before or after 6 months. Patients with resectable recurrent hypopharyngeal cancers are encouraged to receive salvage surgeries.

S029: SURVIVAL AFTER REFUSAL OF SURGICAL TREATMENT FOR LOCALLY ADVANCED LARYNGEAL CANCER

Sean T Massa, MD, Joel Franco, MD, Greg M Ward, MD, Ronald J Walker, MD; Saint Louis University

Background: Unlike other head and neck sites, survival for patients with advanced laryngeal cancer is worsening over time. The generalization of chemoradiotherapy organ preservation protocols to inappropriate patients has been identified as a potential cause. The details of how to appropriately identify these patients has been studied extensively, but some patients ultimately insist on non-surgical therapy against their treatment team's recommendation. Better understanding of the survival rate after refusal of surgical therapy for advanced laryngeal cancer will improve counselling of patients about the implications of this decision.

Methods: Adult patients with T3 and T4a, non-metastatic laryngeal squamous carcinoma were identified from the Surveillance, Epidemiology and End Results (SEER) 18 database from 2004-2013. Patients with a prior malignant diagnosis, unknown survival time or unknown reason for no surgical treatment were excluded. The primary analysis compared patients who refused surgery to those who received surgery, while the survival analysis compares all given reasons for no surgical treatment. Cohorts are presented with descriptive statistics and compared using appropriate unpaired statistical tests. A multivariate logistic regression investigated variables associated with refusal of surgery, specifically: age, sex, race, year of diagnosis, marital status, insurance, tumor stage and nodal stage. Kaplan-Meier cancer-specific survival curves are generated and stratified by reason for no surgery and tumor stage, then compared to the surgical group by rank-log testing. A multivariate Cox proportional hazard model for cancer-specific mortality was used to control for confounders. Statistical significance was set at $p < 0.05$.

Results: A minority of patients refused surgery (168 of 2843, 5.9%). These patients are slightly older (63.4 vs 61.2 years), more often divorced or widowed (39.9% vs 27.0%), with T3 tumors (59.5% vs 44.1%) and N0 stage (56.0% vs 53.1%) ($p < 0.002$). All of these factors, except nodal stage, were independently significant in the multivariate analysis ($p < 0.05$). 5-year cancer-specific survival for patients refusing surgery was 2.67 years, which was worse than patients treated surgically (8.17 years) and patients in whom surgery was not recommended (5.16 years), but better than when surgery was contraindicated (1.33 years) ($p < 0.05$). These trends were preserved when stratifying by tumor stage. Refusal of surgery was independently associated with an increased hazard of cancer-

specific mortality after controlling for demographic and tumor factors (HR 1.85, 95% CI 1.47 - 2.33).

Discussion: In this observational cancer database study of patients with advanced laryngeal cancer, those refusing surgery have substantially foreshortened survival compared to surgically treated patients. Patients with T3 tumors were more likely to refuse surgery, but the survival for this subset was even worse than when surgery was considered contraindicated. This association persists despite controlling for available tumor and patient factors. However, important clinical details including comorbidities, arytenoid fixation, extent of cartilage invasion and chemotherapy treatments could not be accounted for with these data. Future study will require review of more detailed clinical data sources to account of additional confounding factors.

S030: NOVEL C-TERMINAL HEAT SHOCK PROTEIN INHIBITORS ARE EFFECTIVE IN TARGETING CISPLATIN RESISTANT HEAD AND NECK SQUAMOUS CELL CARCINOMA.

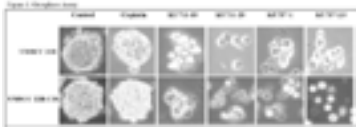
Kevin J Kovatch, MD[1], Chitra Subramanian, PhD, MBA[3], Thomas E Carey, PhD[1], Mark E Prince, MD[1], Brian S Blagg, PhD[2], Mark S Cohen, MD, FACS[3]; [1]Department of Otolaryngology, University of Michigan, [3]Department of Surgery, University of Michigan, [2]Department of Medicinal Chemistry, The University of Kansas

INTRODUCTION: Standard treatment for locally advanced head and neck squamous cell carcinoma (HNSCC) involves multimodal chemoradiotherapy after surgery, yet resistance is common and recently has been attributed in part to tumor progenitor cancer stem cells (CSCs). It has been shown that HNSCC pathways upregulated in drug resistance are driven by proteins phosphorylated through heat shock protein 90's (Hsp90) molecular chaperone function. While early and next generation N-terminal Hsp90 inhibitors showed efficacy in early clinical trials, dose-limiting toxicities (DLT) due to induction of the heat shock response with subsequent upregulation of Hsp70 and prosurvival effects, requiring higher doses to maintain effect until DLTs are reached, have limited their use. We have shown that compounds developed to inhibit the carboxy terminus of Hsp90 have excellent anticancer potency without induction of the heat shock response, and these represent a novel and powerful strategy for overcoming HNSCC resistance mechanisms.

OBJECTIVES/HYPOTHESIS: We hypothesize that novel C-terminal Hsp90 inhibitors(KU711 and KU757) will overcome cisplatin resistance in HNSCC and quiesce CSC functions including migration, invasion, self-renewal and epithelial to mesenchymal transition(EMT).

METHODS: Validated human HNSCC cell lines (UMSCC 22B and cisplatin-resistant UMSCC 22B [up to 12uM cisplatin]) were grown in culture and treated *in vitro* with concentrations of KU711 and 757, two novel C-terminal Hsp90 inhibitors. Markers of cancer stem cells(CD44 and ALDH) were evaluated by flow cytometry. Migration and invasion was measured using Boyden chamber assay. Western blot (WB) analysis was used for for BMI1 and EMT markers vimentin and E-cadherin. Orosphere assay evaluated self-renewal, and CSC miRNA expression was evaluated by PCR array from Qiagen.

RESULTS: UMSCC 22B and 22B-cis cells were treated with varying concentration of inhibitors (KU711 with 20 and 40 mM; KU757 with 1 and 2.5 mM) and the functions of CSCs were analyzed. We observed dose dependent decrease in cancer stem cell markers such as CD44, ALDH, and CD44/ALDH double positive cells ($p<0.01$) for both cell lines. When cells were treated with either drug, the migration and invasion was down regulated greater than 90% even at the lowest concentrations of 20 mM and 1 mM KU711 and KU757, respectively ($p <0.001$). Analysis of self-renewal by orosphere formation assay indicated complete blockage for the resistant and parent cell lines ($p<0.001$) starting from 20 mM and 1 mM KU711 and KU757, respectively (Figure 1). Western Blot, showed >90% reduction in BMI-1 and the mesenchymal marker vimentin ($p<0.01$), as well as increase in epithelial cell marker e-cadherin for both cell lines, indicating EMT quiescence. Finally, on PCR microarray we observed down regulation of several CSC-mediated miRNAs that play a critical role in HNSCC therapy resistance with treatment, indicating efficacy of the C-terminal inhibitors in targeting CSC functions.



CONCLUSIONS: Novel C-terminal Hsp90 inhibitors KU711 and KU757 target cisplatin-resistant HNSCC cells *in vitro* by inhibiting cancer stem cell markers CD44 and ALDH as well as CSC function such as migration, invasion, self-renewal and BMI-1. These drugs represent a novel class of therapeutic agents for overcoming cisplatin resistance in HNSCC and warrant further *in vivo* translational evaluation.

S031: CISPLATIN SCHEDULE AND PHARMACOGENOMIC PREDICTORS OF OTOTOXICITY IN HEAD AND NECK CANCER PATIENTS TREATED WITH CHEMORADIATION.

Eric Winquist[1], Wendy A Teft[1], Anthony Nichols[1], Christina Parker[2], Peggy Francis[2], Maureen Trinnear[2], Yun-Hee Choi[1], Nedal Bukhari[1], Jelena Lukovic[1], Sara Kuruvilla[1], Suzanne Richter[1], Alex Hammond[1], Nancy Read[1], Varagur Venkatesan[1], Danielle MacNeil[1], Kevin Fung[1], Stephen Welch[1], David A Palma[1], John Yoo[1], Richard B Kim[1]; [1]University of Western Ontario, [2]London Health Sciences Centre

Background: Cisplatin-based chemoradiotherapy remains a standard treatment for patients with locally advanced head and neck squamous cell carcinomas. Use of cisplatin can cause ototoxicity which may compromise both treatment delivery and longterm quality of life. Studies in pediatric cancer patients have identified single nucleotide polymorphisms (SNPs) in COMT, TPMT and ACYP2 genes as risk factors for cisplatin-related ototoxicity (Ross et al 2009, Xu et al 2015 Nat Genet). We hypothesized that SNPs could predict ototoxicity risk in adult head and neck cancer patients and investigated this in a prospective cohort study.

Methods: Consenting adult head and neck cancer patients with adequate baseline hearing and renal function treated with concurrent cisplatin chemoradiotherapy were prospectively enrolled. Audiometric testing was done at baseline and 3, 6, 12 & 18 months. Ototoxicity was defined as ≥grade 2 audiometric change from baseline (CTCAE v4.02) present 12 months post-treatment. Use of alternative radiosensitizers for toxicity was allowed at physicians' discretion. Genotyping using a candidate gene approach was was done using TaqMan allelic discrimination assays for cisplatin methyltransferase (TPMT, COMT), acylphosphatase (ACYP2) and transporter (CTR1, OCT2, MATE1, ABCC2, ABCC3) genes. Age, sex, cochlear radiation dose, cisplatin dose, and cisplatin schedule were included as clinical variables. Relationships between clinical variables, genotype and outcomes were assessed using Cox regression with interval censoring and reported as a hazard ratio (HR) and 95% confidence interval (95%CI).

Results: 223 patients were enrolled Sept 2012 to Dec 2015. Seventeen patients were excluded due to ineligibility or missing data, leaving 206 evaluable patients. The median age was 57 years (range, 31-78 years) and 83% were male. 72.8% had stage IVA/B disease, and 93/111 (83.8%) of patient tumors tested were p16 positive. 86.4% received high-dose cisplatin and 13.6% received weekly cisplatin. The cumulative cisplatin dose was 490 mg (range, 126-824 mg). Total mean cochlear radiation dose was 21.69 Gy (range, 0.96-102.21 Gy). 62.6% of patients experienced grade 2-3 CTCAE hearing change. Multivariable analyses identified the COMT rs9332377 SNP as an independent predictor of ototoxicity (HR 1.65 [95%CI, 1.1-2.4]). Independent predictors of reduced ototoxicity risk were weekly cisplatin schedule (HR 0.30 [95%CI, 0.1-0.6]) and homozygous MATE1 rs2289669 SNP (HR 0.41 [95%CI, 0.2-0.7]). The findings were similar in the subset of patients with p16 positive oropharynx cancers.

Conclusions: Cisplatin schedule and COMT and MATE1 SNPs were independent predictors of cisplatin ototoxicity. Concordant with previous findings in pediatric patients the presence of COMT SNP was associated with an increased ototoxicity risk. Unique findings were the association of weekly cisplatin schedule and homozygous MATE1 SNP with a reduced ototoxicity risk. These findings will be validated in a prospective randomized trial of high-dose versus weekly cisplatin.

S032: PD-1 BLOCKADE PREVENTS THE DEVELOPMENT OF ORAL SQUAMOUS CELL CARCINOMA FROM CARCINOGEN-INDUCED PREMALIGNANT LESIONS

Jin Wang[1], Bingbing Wang[1], Xiaoyuan Zhu[1], Tongxin Xie[1], Adel K El-Naggar[2], Jeffrey N Myers[1], Carlos Caulin[1]; [1]Departments of Head and Neck surgery, The University of Texas MD Anderson Cancer Center, [2]Department of Pathology, The University of Texas MD Anderson Cancer Center

Background: Head and neck squamous cell carcinoma (HNSCC) induces an immune suppressive state via various mechanisms. Oral squamous cell carcinoma (OSCC) is a major subtype of HNSCC that can arise from oral premalignant lesions (OPLs) which develop from normal oral mucosal epithelia. Immune checkpoint inhibitors that target the interaction between programmed death receptor 1/ programmed death ligand 1(PD-1/ PDL-1) are currently being investigated in clinical trials for HNSCC. These trials indicate a favorable safety and toxicity profile in this patient population. However, it is not known if this approach may be effective in preventing malignant progression of OPLs. The 4NQO mouse model of oral carcinogenesis is an ideal experimental system for preclinical prevention studies in head and neck cancer because 4NQO induces oral lesions that may progress to advance carcinomas following stepwise changes that resemble the gradual accumulation of histological and molecular abnormalities observed during human oral cancer progression.

Objective: Here we tested the hypothesis that immune checkpoint blockade with anti-PD-1 antibodies, the most widely used medication for cancer immunotherapy, may prevent malignant progression of OPLs and lower the risk of OSCC development.

Method: We use the 4NQO mouse model that results in the accumulation of multiple oral premalignant lesions some of which progress into OSCC. To accelerate tumor development we used heterozygous p53 knockout mice. Mice were exposed to 4NQO in the drinking water for 8 weeks. Then, the mice were randomly assigned to two treatment groups receiving: (1) control IgG (IgG) (250mg/mouse), (2) Monoclonal antibody against PD-1 (250mg/mouse), injected twice a week for 4 weeks. All animals underwent a full oral cavity examination twice a week, and were euthanized five weeks after completion of the antibody treatments. Tissues were collected, fixed and processed for paraffin embedding for histopathologic diagnosis. Further, immunohistochemical studies were performed to analyze the immune response to the PD-1 blockade in microenvironment of OPLs and OSCC.

Results: The monoclonal PD-1 antibody remarkably reduced the growth of OPLs and prevented the development of OSCC by significantly reducing the number of carcinogen-induced OPLs and OSCCs. We observed that OPLs responded to PD-1 blockade treatment with recruitment of CD8+, CD4+, FOXP3+ T cells. Blockade of PD-1 checkpoint also induced the accumulation of CTLA-4+ T cells in OPLs. In the PD-1 blockade group, PD-1+ T cell infiltration decreased in high-grade dysplastic lesions compared to low-grade dysplastic lesions, but there was no significant differences in PD-L1 expression on the epithelial cells of the OPLs between groups. Additionally, the OX40+ and 4-1BB staining of T cells significantly increased during progression of OPLs to OSCCs. However, there were no significant differences in OX40+ or 4-1BB+ T cells between control and PD-1 blockade group.

Conclusion: In this study, we underscore the potential clinical benefit of using PD-1 antibody as a preventive agent in the control of OSCC development and progression. Our data further indicate the potential benefit of antibodies to PD1 and CTLA-4 inhibitors in OSCC prevention.

S033: POST-OPERATIVE IMMUNE CHECKPOINT BLOCKADE TO PREVENT CANCER RECURRENCE IN THE SURGICAL WOUND

Nayeon Choi, MD, Hangyul Kim, MD, Jungjoo Lee, MD, Youngsang Cho, MD, Boyoung Kim, MD, Han-Sin Jeong, MD, PhD; Samsung Medical Center

Background: Surgical resection of tumor is an essential part for cancer treatments as well as radiation and chemotherapy; however surgery could promote tumor recurrence or metastasis progression by various mechanisms. In head and neck cancer, vital structures in the head and neck may hinder a surgeon from getting enough surgical safety margins resulting in microscopic residual diseases in the surgical wound. Although postoperative radiation and chemotherapy are routinely applied for these cases, the treatment outcomes are not optimal and patients suffer from treatment related toxicities. To search for a more effective but less toxic

adjuvant treatment modality in high risk of recurrence (residual diseases in the surgical wound), we aimed to establish an in-vivo animal model of post-surgical tumor recurrence, and to evaluate the preventive effects of immune checkpoint inhibitor.

Materials and Methods: First, we established an animal model of post-surgical tumor recurrence (SCCVII tumors in C3H mice) by re-inoculation of tumor cells into the surgical wound of primary tumor resection (tumor volume = 670 mm^3). The initial and recurrent tumors were compared with immunohistochemistry and cDNA microarray. Using this in-vivo model, we evaluated the preventive effects of immune checkpoint inhibitor (anti-PD-1 antibody), and tumor cells were re-challenged to the animals without recurrence.

Results: In our animal model of post-surgical cancer recurrence, approximately 2/3 of animals had tumor recurrence in the surgical wound (re-inoculation of $1x10^5$ SCCVII cells), consistently. Comparing primary and recurrent tumors, some immune response related factors (granzyme F, neuronal leucine rich repeat protein 1, myosin heavy chain 3, transmembrane protein 8C) showed a significant difference. In this animal model, anti PD-1 antibody treatments significantly suppressed tumor recurrence in comparison with control ($P = 0.029$). Importantly, tumor induction was significantly reduced when re-challenging of tumor cells into the anti PD-1 antibody treated mice, and tumor cell specific interferon-gamma secretion was increased in these animals.

Conclusion: We suggested that postoperative immune checkpoint inhibitors could reduce cancer recurrence at the surgical wound in high risk cases.

S034: ANALYSIS OF THE GENOMIC LANDSCAPE OF ANAPLASTIC THYROID CANCER PROVIDES INSIGHT INTO THYROID CANCER PROGRESSION

Anthony C Nichols, MD[1], Stephen Y Lai, MD, PhD[2], Stephenie Prokopec, PhD[3], David Wheeler, PhD[4], Nicole Pinto, BSc, MD[1], John W Barrett, PhD[1], John A Copland, PhD[5], Robert Smallridge, MD[5], Steven Scherer, PhD[4], Nishant Agrawal, MD[6], Douglas Ball, MD[7], Barry Nelkin, PhD[7], John Yoo, MD[1], Kevin Fung, MD[1], Yuri Nikiforov, MD, PhD[8], Thomas Giordano, MD, PhD[9], William C Faquin, MD, PhD[10], Michelle D Williams, MD[2], Michael Rivera, MD[11], Anthony Gill, MD, PhD[12], Cathie Garnis, PhD[13], James W Rocco, MD, PhD[14], Paul Weinberger, MD[15], Liu Xi, PhD[4], Alfred Lam, MD, PhD[16], Tobias Carling[17], Reju Korah, PhD[17], Roderick Clifton-Bligh[12], Gary Clayman, MD[18], Justin Bishop, MD, PhD[7], Christopher Howlett, MD, PhD[1], Paul C Boutros, PhD[3]; [1]Western University, [2]MD Anderson Cancer Center, [3]Ontario Institute for Cancer Research, [4]Baylor College of Medicine, [5]Mayo Clinic Florida, [6]University of Chicago, [7]Johns Hopkins University, [8]University of Pittsburgh Medical Center, [9]University of Michigan, [10]Harvard University, [11]Mayo Clinic Minnesota, [12]University of Sydney, [13]University of British Columbia, [14]Ohio State University, [15]Lousiana State University - Shrevport, [16]Griffith University, [17]Yale University, [18]Clayman Thyroid Cancer Center

Background: Anaplastic thyroid cancer (ATC) is perhaps the most aggressive human malignancy with no effective therapies. There is an urgent need for new treatments to improve outcomes for patients suffering with this disease. To date, a comprehensive multi-platform analysis of ATC has not been carried out. The Global Anaplastic Thyroid Cancer Initiative (GATCI) is a combined effort of 14 institutions to study the genomics and biology of ATC.

Methods: Over 350 ATC tumors have been committed to the GATCI from 14 institutions. To date, a centralized pathology review has been completed and 130 tumors have undergone whole exome sequencing and 80 have been characterized with copy number arrays. Twenty-five tumors have undergone RNA sequencing and 6 have been whole genome sequenced.

Results: Integrated analysis is ongoing. In contrast to papillary thyroid cancer that contains single, mutually exclusive oncogene point mutations or fusions and rare tumor suppressor mutations, the genomic landscape of ATC is significantly more complex. Frequent homozygous deletions of CDKN2A were noted in 60% of cases, while TP53 contained point mutations in 27% of samples. Two clusters of mutations were noted: 1) tumors with TP53, BRAF and PIK3CA, and 2) NRAS and EIF1AX ($p<0.01$). Unsupervised hierarchal clustering of copy number data stratified tumors into three subtypes, including a subtype with a paucity of copy number alterations, and another

with broad areas of deletions. Whole genome sequencing identified multiple novel structural rearrangements, and detected high levels of kataegis (areas of focal hypermutation) in all samples. Subclonality analysis demonstrated a range of one to five subclones per tumor, with only linear progression observed (no branching). Analysis of the subset of ATC samples that contained well-differentiated as well as undifferentiated components identified a large number of shared mutations, strongly supporting the hypothesis that ATC arises from well-differentiated thyroid cancers.

Conclusions: This ongoing multi-institutional collaboration represents the first multi-platform analysis of ATC, and demonstrates that this aggressive thyroid cancer is genomically more complex than well differentiated thyroid cancers. Characterization of well-differentiated and poorly differentiated components provides the first strong evidence of thyroid cancer progression. Functional analysis of variants identified more frequently or at higher allele frequency in the undifferentiated components is ongoing to understand which genes drive thyroid cancer dedifferentiation.

S035: A RANDOMIZED CONTROLLED TRIAL COMPARING OUTPUT VOLUME THRESHOLDS FOR DRAIN REMOVAL AFTER SELECTIVE LATERAL NECK DISSECTIONS: A PRELIMINARY REPORT.

Matthew Tamplen, MD[1], Elizabeth Shuman, BA[1], Jonathan R George, MD[1], Chase Heaton, MD[1], Steven Wang, MD[2], William R Ryan, MD[1]; [1]UCSF, [2]University of Arizona College of Medicine

Importance: There is a paucity of evidence to guide drain removal after selective lateral neck dissections (SLND). Two studies from the early 1980s suggested drain removal criteria for after radical neck dissections being volume outputs of less than 25 or 30ml over 24-hours. Radical neck dissections have largely been replaced by selective lateral necks dissections. Many surgeons leave drains after SLNDs until similar outputs have been achieved to theoretically help identify, reduce, and/or prevent hematomas and seromas. Patients are possibly having drains left in longer than necessary leading to longer hospitalizations and thereby increasing costs. Earlier drain removal for SLNDs, if safe, could potentially improve patient quality of life and decrease overall cost.

Objective: Conduct the first blinded randomized controlled trial (RCT) comparing two output volume thresholds for drain removal after SLND.

Methods: All adult patients undergoing a SLND either levels 1-3, 1-4, 2-3, or 2-4 for oral cavity, oropharynx, thyroid, or skin carcinoma were enrolled. We excluded any patients who underwent a parotidectomy, a level 5 lymphadenectomy, or SLNDs that communicated with the upper aerodigestive tract (including free flaps). After completion of the SLND, patients were randomized to one of two groups assigning drain removal policy based on output volume: less than 30ml over 24-hours or less than 100ml over 24 hours. Patients were excluded if there was concern for chylous fistula or hematoma. Patients were allowed to go home with a drain in place. For 30 days postoperatively, we assessed length of time with drain, hospital length of stay, wound infection, hematoma and seroma formation, and the mean variable direct cost of total hospitalizations for both groups.

Results: 46 patients who underwent 58 SLNDs were enrolled. 28 SLNDs were randomized to the 100ml threshold for drain removal group and 30 SLNDs were randomized in the 30ml threshold group. Between the groups, there were no significant differences in age, sex, body mass index, American Society of Anesthesiologists score, primary site or resection, estimated blood loss, or mean number of lymph nodes removed (29.6 vs 30.2 P=0.882). There were 2 seromas in each group (7.1% (2/28) vs 6.7% (2/30), respectively, (p=0.94)). There were no hematomas or wound infections in either group. The 100ml threshold for drain removal group had a shorter time to drain removal (2.0 vs 4.2 days p=0.0005) and shorter hospital length of stay (3.0 vs 5.2 days p=0.0034) compared to the 30ml threshold for drain removal group. The reduction in hospital length of stay saved $2,578 per patient.

Conclusions: A higher volume criterion for drain removal of 100ml over 24 hours for certain SLNDs (without parotidectomy or connection to the upper aerodigestive tract) appears to be safe and significantly reduces time to drain removal, hospital length of stay, and overall cost. This is the first randomized controlled trial evaluating drain management after SLNDs.

S036: VENOUS THROMBOEMBOLISM INCIDENCE IN HEAD AND NECK SURGERY PATIENTS: ANALYSIS OF THE VETERANS AFFAIRS SURGICAL QUALITY IMPROVEMENT PROGRAM (VASQIP) DATABASE

Alia Mowery, BS, Tyler Light, BS, Daniel Clayburgh, MD, PhD; Oregon Health and Science University

Introduction: Venous thromboembolism (VTE) is a significant driver of postoperative morbidity and mortality. In otolaryngology, post-surgical VTE rate has generally been thought to be quite low, although head and neck surgery patients are at higher risk. Most previous studies have been retrospective in nature and only followed patients during their postoperative hospitalization. However, in other surgical fields an elevated risk of VTE persists up to 30 days after surgery, beyond hospital discharge. This 30-day VTE incidence has not been previously investigated in head and neck surgery.

Methods: The Veterans Affairs Surgical Quality Improvement Project (VASQIP) database was queried for patients that underwent ablative head and neck surgical procedures between 1991-2015. Patient demographics and operative information, including age, gender, race, BMI, medical co-morbidities, pre-operative lab values, and post-operative outcomes including VTE incidence within 30 days after surgery were obtained and converted to categorical values when applicable. Chi-square and binary logistic regression analyses were conducted with a p value <0.05 indicating statistical significance.

Results: A total of 54205 cases were identified in the VASQIP database. 169 VTE were identified in this cohort, for an overall rate of 0.31%. There was significant variation in VTE risk among head and neck procedures; among patients who had a total laryngectomy, VTE occurred in 43 out of 6626 cases (0.65%), while in only 22 out of 12212 (0.18%) cases of thyroid and parathyroid surgery (p<0.001).

On univariate analysis of VTE risk factors, partial Caprini score (p<0.001), age (p<0.001), male gender (p=0.024), history of recent significant weight loss (p=0.001), functional status (p<0.001), presence of dyspnea (p<0.001), sepsis in the 48 hours prior to surgery (p=0.029), current pneumonia (p<0.001), history of COPD (p<0.001), recent steroid use (p<0.001), disseminated cancer (p=0.006), and preoperative albumin below 3 (p<0.001) were all predictive of the development of a VTE. Age, history of recent significant weight loss, and preoperative albumin were all significant on regression analysis. Patients who experienced a post-operative VTE had a significantly longer length of hospital stay (p<0.001) as well as higher rate of death within 30 days of surgery (p<0.001).

Conclusions: In this, one of the largest cohorts of head and neck patients assessed for VTE incidence, a low VTE rate was observed, consistent with other prior retrospective studies. However, it is clear that larger, more complex head and neck procedures carry a higher VTE risk, and that certain demographic factors and medical co-morbidities may also heighten this risk. Further risk stratification of head and neck surgery patients may be helpful to direct closer VTE monitoring and prophylaxis measures to reduce the rate of VTE in head and neck surgery patients.

S037: COST-EFFECTIVE ANALYSIS OF TREATMENT STRATEGY OF HEAD AND NECK SQUAMOUS CELL CARCINOMA BY EARLY AND LATE STAGE AT DIAGNOSIS IN A CANCER CARE FACILITY

Shin Jeong, PhD, Carol M Lewis, MD, Associate, Professor; MD Anderson Cancer Center

Background: Head and neck carcinomas are one of the most frequent tumor diseases. Due to different multimodal and multidisciplinary treatment options, the treatment cost shows a big variation. However, the evidence on the effectiveness by stage and cost-effectiveness of treatment modality is limited. The objective of this study is to determine the effectiveness and cost-effectiveness of each treatment modality for early and late oropharyngeal cancer at diagnosis in a cancer care facility. Cost-effectiveness analysis were performed among patients received surgery, surgery with radiation, surgery with chemo-radiation, chemo-radiation alone and radiation only.

Methods: A retrospective study was conducted using chart review in an oropharyngeal cancer care program in a metropolitan area. Patients on oropharyngeal cancer stage by early (T1 and T2) and late (T3 and T4) at diagnosis from January 1, 2015 to October 31, 2015 were identified. They

were categorized into six treatment groups, as surgery, surgery with radiation, surgery with chemo-radiation, surgery with chemotherapy, combined chemo-radiation and radiation only. Effectiveness was measured in life months and quality adjusted life months (QALMs). Medical care cost was defined as a US dollar amount charged to the third-party payer or patient for the period from the first diagnosis date until the end of study or death. Treatment effectiveness was measured in life months gained and quality adjusted life months gained. Twelve-month cancer-specific survival rate was the proportion of the patients with one-year follow-up who did not die of the cancer within the same period. The average health state utility in oropharyngeal care was gained from other literatures.

Results: Of the 93 patients, 70% of patients received combined chemo-radiation, and 11%, 9%, 5%, 3%, 2% of them got radiation alone, surgery, surgery with radiation, surgery along with chemo-radiation and chemotherapy, respectively. Patients with surgery experienced 8.16 QALMs and the patients with other treatment modality experienced 6.72 QALMs in overall. Incremental cost effectiveness ratios (ICER) for surgery (10% of the early cancer patients) vs. surgery with radiation (7%) were $20,833 per QALM gained, and ICER for surgery with radiation vs. surgery with chemo-radiation (4%) was $18, 236. However, ICERs for surgery with chemo-radiation vs. chemo-radiation (64%) and chemo-radiation vs. radiation (14%) were 'not cost-effective' in early stage cancer care group. The treatment of chemotherapy alone was excluded in the comparison, as the treatment strategy as a palliative care doesn't have the same goal of effectiveness to compare. ICER for surgery (5%) vs chemo-radiation (90%) was $ 14,569 per QALM gained. Hence, surgery performs better in both of the groups.

Conclusion: Surgery is more effective and cost-effective than other strategies for oropharyngeal cancer treatment. And, total oropharyngeal care cost increases as treatment strategies become more expensive. However, this research finding might be relevant when it comes to relatively short-term observational periods. Future studies with a longer observational time frame are expected.

S038: MULTIDISCIPLINARY HEAD AND NECK CANCER CLINIC; A SINGLE INSTITUTION EXPERIENCE

M Townsend, MD, D Kallogjeri, MD, MPH, S Jansen, RN, B Nussenbaum, MD, FACS; washington university in st louis

Importance: Contemporary head and neck cancer management involves physicians and ancillary professionals from multiple fields of expertise. Streamlined care that incorporates comprehensive pretreatment consultations while reducing treatment delay is needed. We evaluated our multidisciplinary (MDC) head and neck clinic model for comprehensiveness of care and reduction in treatment delay as compared to our traditional, multiple appointment clinic model.

Methods: A retrospective review of patients referred to the Washington University Head and Neck Surgery Clinic from March 2015 to July 2016 was performed. Patients enrolled in both the traditional clinic model and the MDC model (a single day in which all physician and ancillary providers were seen) were included. New or recurrent SCCa of the oral cavity, oropharynx, hypopharynx and larynx were included. A total of 141 patients were evaluated, 73 in the traditional model and 68 in the MDC model. Days from referral, biopsy and initial appointment to start of definitive treatment were evaluated. Proportions of patients who received a complete evaluation prior to treatment (including medical and radiation oncology, speech and audiology), were presented at a multidisciplinary tumor board, and were enrolled in trials and registries were analyzed. Disease stage, primary tumor site, modality of treatment, age, gender, and residential distance away from the clinic were evaluated.

Results: As compared to the traditional clinic, MDC clinic patients had shorter intervals between initial appointment and start of treatment as well as between initial clinic referral and biopsy (median 22 vs 19 days, p=0.06; median 7 vs 4 days, p=0.01). Twelve percent of traditional clinic patients had intervals of greater than 61 days from referral to treatment, whereas only 1 patient from the MDC clinic had an interval this long. Similarly, 4% of traditional patients had an interval greater than 61 days from initial appointment to treatment whereas no MDC patients did. MDC patients saw both medical and radiation oncology immediately, whereas

traditional patients on average took 29 days to see all physician providers (p=0.001). MDC patients saw speech therapy and audiology immediately, whereas traditional patients took an average of 79 days (p=0.001). A significantly higher number of patients seen in the MDC clinic were discussed in tumor board (25%, 95% CI 15% to 35%). Patients going through the MDC clinic had a 12% higher rate of enrollment in clinical trials, although this difference did not reach statistical significance (95% CI -4% to 28%). There was no overall difference in disease stage between the two groups.

Conclusion: Timely head and neck cancer care is complex and challenging. Its importance is demonstrated in a recently published study where treatment delays longer than 61 days are associated with an independent risk of mortality on multivariate analysis. Additionally, the importance of informed decision making by patients should not be understated and hinges upon a comprehensive pretreatment evaluation by those providers impacting a patient's treatment path and quality of life. We present a model in which patients consistently receive comprehensive pretreatment evaluations as well as have a more efficient route from referral to treatment initiation.

S039: COST AND HEALTHCARE UTILIZATION AMONG HEAD AND NECK CANCER PATIENTS IN A SINGLE-PAYER UNIVERSAL HEALTH CARE MODEL

Art Ambrosio, MD[1], Diana D Jeffery, PhD[2], C. Allison Russo, DrPH[3], Laura Hopkins, MS[3], Elizabeth A Kostas-Polston, PhD[3], Harry B Burke, MD, PhD[4]; [1]Naval Medical Center San Diego, Naval Hospital Camp Pendleton, [2]Department of Defense - Defense Health Agency, [3]Kennell and Associates, Inc., [4]Uniformed Services University of the Health Sciences

Background: This study examines trends in the Department of Defense (DoD) beneficiary population diagnosed with head and neck cancer (HNC) with respect to: (1) reimbursed annual costs, and (2) patterns and predictors of healthcare utilization in military and civilian systems of care.

Methods: Administrative claims data from the Military Health System Data Repository were analyzed to identify beneficiaries, age 18 – 64, with a principle ICD-9 diagnosis of HNC, fiscal years 2007 - 2014. Total cost, number of ambulatory visits, and number of hospitalizations with subsequent number of admission days were analyzed. Independent variables included fiscal year, demographic variables (age group, sex, rank of sponsor, military service affiliation), beneficiary status (active duty, family member, military retiree, family member of military retiree), type and geographic region of TRICARE enrollment, system of care (military, purchased civilian health care, combined), cancer treatment modality (surgery, radiation, chemotherapy), physical and mental health comorbid conditions, and tobacco use.

Results: We identified approximately 3,000 beneficiaries with HNC diagnosed annually. 62% were between age 55-64, 70% were male, and 78% had enlisted rank sponsorship. Adjusted to 2014 dollars, the average annual cost per patient excluding pharmacy costs was $16,607 with average annual pharmacy cost of $3,749. Bivariate analysis also showed no statistically significant difference in total cost or pharmacy cost between fiscal years; bivariate analysis also showed no statistically significant difference in healthcare utilization between fiscal years. Beneficiaries who received care in both military and civilian facilities had significantly higher costs ($p < 0.001$) than those treated in one system of care exclusively. There was no statistically significant difference, however, in annual total cost of care was found between those treated exclusively in either system of care. By annual average, the number of ambulatory visits was 30.44, the number of hospital admissions was 1.65, and the number of admission days was 20.76. The five biggest predictors of healthcare utilization outcomes were (1) chemotherapy ($p < 0.0001$), (2) the presence of a mood disorder comorbidity, (3) radiation therapy, and (4) surgical resection $p < 0.0001$), and (5) number of chronic physical health conditions ($p < 0.0001$).

Conclusions: TRICARE is the military's single-payer healthcare system, covering active duty and retired military servicemembers, as well as their families. This is the first study to analyze cost and healthcare utilization of non-elderly adults with head and neck cancer. The average annual costs of non-elderly beneficiaries diagnosed with head and neck cancer were found to be lower than those reported using data from the Medical Expenditure

Panel Survey, which included all ages ($23,408). Further, cost burden under TRICARE claims did not demonstrate a significant difference whether they were treated within military or civilian networks alone. These data can help determine both cost and personnel needed to support a defined incidence of HNC. Primary prevention of HNC in the face of a stable annual incidence include tobacco and heavy alcohol use identification and cessation, and offering of HPV vaccination administration for servicemembers per CDC guidelines.

S040: READMISSIONS IN HEAD AND NECK CANCER - A NATIONAL PERSPECTIVE

Michelle M Chen, MD, Ryan K Orosco, MD, Jeremy P Harris, MD, Julie B Porter, MS, Eben L Rosenthal, MD, Wendy Hara, MD, Vasu Divi, MD; Stanford University

Importance: The Hospital Readmissions Reduction Program levies a financial penalty on hospitals with readmissions in excess of the national rate. There are concerns from providers on the validity of these metrics and the degree of risk-adjustment for patient factors that may influence the likelihood of readmission. Oncology patients in particular often have multiple comorbidities and are at high risk of readmission.

Objective: To evaluate the cause of and risk factors for readmission for head and neck cancer patients.

Design: Retrospective cohort study

Setting: Nationwide Readmissions Database (January 1, 2013 to December 31, 2013)

Participants: Adult patients who had surgery for head and neck cancer.

Main Outcomes and Measures: Our main outcome was 30-day readmission. Statistical analysis included 2-sided t tests, œ, and multivariate logistic regression analysis.

Results: We identified a nationally weighted total of 11,832 patients who were assessed for 30-day readmissions. Within 30 days, 16.1% of patients were readmitted and 20% of readmissions were not at the index hospital. The total cost of these readmissions was $31 million. Readmission rates varied by tumor site, with hypopharyngeal cancer having the highest readmission rate (29.6%), followed by laryngeal (21.8%), oropharyngeal (18.2%), and oral cavity (11.6%) cancers (P< .001). Over half of all 30-day readmissions occurred within the first 10 days after discharge. 24.8% of all readmitted patients had an infectious diagnosis. Patient insurance was not associated with readmission; however, patients from areas with lower household incomes were more likely to be readmitted (odds ratio [OR], 1.54; 95% confidence interval [CI], 1.16-2.05). Of 21 patient comorbidities examined, patients with valvular disease (OR, 2.07; 95% CI, 1.16-3.69), rheumatoid arthritis or collagen vascular disease (OR, 2.05; 95% CI, 1.27-3.31), liver disease (OR, 2.02, 95% CI, 1.37-2.99), and hypothyroidism (OR 1.30; 95% CI, 1.02-1.66) were at highest risk of readmission. Teaching hospital status was the only hospital level factor that was independently associated with increased risk of readmission (1.48; 95% CI, 1.02-2.13).

Conclusions and Relevance: Over half of readmissions after head and neck cancer surgery occur within ten days of hospital discharge. Readmissions after head and neck surgery are most commonly associated with an infectious diagnosis and vary significantly based on surgical site. Readmission reduction programs for head and neck cancer patients should be risk adjusted for tumor site, patient socioeconomic status, select comorbidities, and hospital type.

S041: PREDICTION OF DISCHARGE DESTINATION FOLLOWING LARYNGECTOMY

Fangfang Wang, BM[1], Robert Lindau, MD[2], Oleg Militsakh, MD[2], Andrew Coughlin, MD[2], Russell Smith, MD[2], Harlan Sayles, MS[3], Daniel Lydiatt, MD[2], William Lydiatt, MD[2], Aru Panwar, MD, FACS[4]; [1]College of Medicine, University of Nebraska Medical Center, Omaha, Nebraska, [2]Head and Neck Surgery, Nebraska Methodist Hospital, Omaha, Nebraska, [3]College of Public Health, University of Nebraska Medical Center, Omaha, Nebraska, [4]Division of head and neck surgery, University of Nebraska Medical Center & Nebraska Methodist Hospital, Omaha, Nebraska

Background: Discharge planning for laryngectomy patients is often initiated late during the patients' inpatient surgical stay and it contributes significantly to unnecessary extension of hospitalization, increased acute care costs, and diminished patient satisfaction. Identification of risk factors that predict discharge to intermediate care facilities can help physicians initiate discharge planning at an earlier time point during the course of surgical management. This may

further streamline discharge planning for laryngectomy patients and optimize resource utilization.

Objective: To identify factors predictive of discharge destination following total laryngectomy.

Methods: Retrospective review of the American College of Surgeons National Surgical Quality Improvement Program® (ACS NSQIP) database to identify discharge patterns for total laryngectomy patients (n=492) between 2011 and 2014. Univariate analyses were performed to identify differences between groups stratified by discharge destination. Multivariate analyses were used to create nomograms predicting discharge to intermediate care facility.

Results: Four hundred and one patients (81.5%) were discharged to home and 86 others (17.5%) were discharged to intermediate care facilities. On univariate analysis, patients discharged to intermediate care facilities had a higher incidence of partially or totally dependent functional status (20%) compared to patients that were discharged home (4%) ($p<0.001$). Additionally, those patients that were discharged to intermediate care facilities had higher incidence of preceding diagnosis of congestive heart failure (CHF) (6% versus 2%, $p=0.043$), chronic steroid use (12% versus 4%, $p=0.011$), and presence of severe COPD (31% versus 19%, $p=0.020$). Additional differences were observed across the groups with regards to American Society of Anesthesiologist (ASA) classification ($p=0.002$) and age ($p=0.001$).

Patients discharged to intermediate care facilities were more likely to have experienced longer hospitalization (mean 14 days versus 10 days, $p=0.002$), higher likelihood of post-operative pneumonia (6% versus 1%, $p=0.019$), sepsis (5% versus 1%, $p=0.021$), and unplanned intubation (5% versus 1%, $p=0.021$).

On multivariable analyses, advanced age (>70 years versus younger), poor functional status (partially/ totally dependent versus independent), pre-operative CHF, and chronic steroid use, persisted as independent predictors of discharge to a non-home destination. Length of hospitalization, post-operative pneumonia, and post-operative sepsis were other variables that were independently associated with discharge to an intermediate care facility.

Conclusion and clinical significance:

- Preoperatively, patients who are older (>70 years), or those who present with functional dependence, preceding heart failure, or chronic steroid use, are more likely to require discharge to an intermediate care facility following total laryngectomy.
- When these risk factors are present, physicians should consider initiating early discharge planning and counsel patients about anticipated discharge to a non-home based facility.
- Association between discharge destination and post-operative adverse events (such as pneumonia and sepsis) emphasizes the impact of such events on discharge disposition, and further supports the rationale and importance of optimal peri-operative care.

S042: THE POSITIVE IMPACT OF EXPANDING THE ROLE OF ADVANCED PRACTICE PROVIDERS IN HEAD AND NECK CANCER CARE

Emily Shindeldecker, NP, Kristen Johnson, MHA, Megan Adelman, PA, Laura Skoracki, PA, Stephanie Wigton, PA, Ann Onofri, NP, Steve Kang, MD, Theodoros Teknos, MD, Amit Agrawal, MD, James Rocco, MD, PhD, Enver Ozer, MD, Ricardo Carrau, MD, Matthew Old, MD; The Ohio State University

Introduction: Continued emphasis is being placed on improving quality metrics, particularly with health care reform. Parallel to this, CMS and the insurance industry have redefined many surgeries that were traditionally inpatient as outpatient surgery. The pressures of more outpatient surgeries and decreasing hospital length of stay drove our group to increase our head and neck advanced practice providers to assist in handling the volume and improving quality metrics.

Hypothesis: The expansion of head and neck advanced practice providers will result in improvements in quality metrics in a busy academic head and neck cancer practice.

Methods: A retrospective review of quality metrics before and after implementation of head and neck trained advanced practitioners (NP, PA, outpatient and inpatient) was collected from electronic medical record system and the quality metric collection system from 2009-2016. Quality metrics included unplanned readmissions and average days to follow up from discharge were compared to outpatient

volume, surgical volume, and provider availability. Metrics were compared before and after establishment of the advanced provider clinics. Standard t-test analyses were performed to assess significance.

Results: New outpatient visits increased 60% to over 2000 visits per year over the study period. Total outpatient clinic visits increase 110% to over 15,000 visits per year over the same time frame. Surgical volume increased by 50% to over 1800 cases in 2016. Outpatient surgical volume has shifted from 30% to over 60% over the study period. The advanced practitioner clinic volume increased to over 1100 visits per year after establishment of the system. Comparing the quality metrics before and after the system was established demonstrated significant improvements in readmission rates (down to 5% of total admissions). Days to follow up after discharged decreased significantly from 12 to 9 days.

Conclusion: The establishment of a head and neck advanced practitioner service has assisted in improving quality metrics despite the trend of shifting surgeries to the outpatient setting and increasing volume of a busy academic practice.

S043: REASSESSMENT OF ADJUVANT THERAPY FOR HIGH-RISK RESECTED SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK

Gaurav S Ajmani, MHS, Cheryl C Nocon, MD, Mihir K Bhayani, MD; The University of Chicago Pritzker School of Medicine; NorthShore University HealthSystem

Background: Subgroup analysis from 2 randomized trials showed a survival benefit with adjuvant chemoradiation (CRT) over radiation alone (RT) for patients with extracapsular lymph node spread (ECS) and/or positive margins (PM), high risk features in squamous cell carcinoma of the head and neck (HNSCC). However, these trial results were not analyzed separately for patients with ECS or PM. Moreover, these trial results were not stratified by subsite or HPV status, and single institution studies suggest that CRT for ECS does not confer a survival benefit over RT alone in HPV-positive oropharyngeal tumors. The National Comprehensive Cancer Network (NCCN) subsequently downgraded their recommendation for CRT in this setting from Category 1 to 2A. Therefore, we aim to study the benefit for CRT over RT in margin- and ECS- positive patients based on subsite and HPV status using a large national cohort.

Methods: Using the National Cancer Database we identified patients diagnosed with HNSCC between 2010-2013 who underwent surgical resection, including 6,753 patients with ECS and 8,745 patients with positive margins, and patients were sub-divided based on subsite and HPV status into: oropharynx HPV-, oropharynx HPV+, hypopharynx, oral cavity, and larynx. Kaplan-Meier curves with log-rank test were used to evaluate overall survival (OS) from surgery, and Cox proportional hazards regression was used to evaluate OS controlling for relevant demographic and clinical characteristics.

Results: Among our ECS cohort, adjuvant CRT was beneficial over RT alone: 1-year OS was 82.0% for CRT vs. 76.6% for RT, and 3-year OS was 63.4% for CRT vs. 55.0% for RT (overall P<.001). This was confirmed in multivariate Cox regression: HR for CRT vs. RT 0.81 (95%CI 0.71 0.93). In stratifying results by subsite and HPV status, the benefit of CRT over RT only approached significance in the oral cavity (HR 0.85, 95%CI 0.72, 1.01), hypopharynx (HR 0.64, 95%CI 0.39, 1.04), and larynx (HR 0.79, 95%CI 0.59, 1.05). There were no differences in OS among the oropharynx patients regardless of HPV status: HPV- (HR 0.65, 95%CI 0.35, 1.19); HPV+ (HR 0.89, 95%CI 0.50, 1.58).

Among the PM cohort, adjuvant CRT was associated with a non-significant survival benefit: 1-year OS was 87.7% for CRT vs. 87.1% for RT, and 3-year OS was 72.6% for CRT vs. 69.3% for RT (overall P=.061). This was consistent with multivariate analysis, where CRT showed no benefit for OS over RT alone (HR 0.97, 95%CI 0.85, 1.11). In subgroup analyses, CRT showed a benefit only among patients with oropharynx HPV+ tumors (HR 0.64, 95%CI 0.41, 0.99).

Conclusions: We found a survival benefit for CRT over RT in the setting of ECS for patients with non-oropharyngeal head and neck tumors. There appeared to be no benefit for CRT over RT in patients with positive margins except among oropharynx HPV+ tumors. A contemporary randomized trial is needed to separately consider the benefits of CRT over RT alone for patients with high-risk HNSSC in all subsites and not just HPV-positive HNSCC.

S044: MARGIN STATUS, SURGICAL APPROACH, AND ONCOLOGIC OUTCOMES FOLLOWING GROSS TOTAL RESECTION OF SINONASAL MELANOMA.

Zafar Sayed, MD, Jennifer Cracchiolo, MD, Luc Morris, MD, Ian Ganly, MD, PhD, Benjamin Roman, MD, Jocelyn Migliacci, MS, Christopher A Barker, MD, Alexander N Shoushtari, MD, Marc Cohen, MD; Memorial Sloan Kettering Cancer Center

Background: Sinonasal melanoma is a rare condition characterized by poor prognosis despite aggressive intervention including surgery, radiation, and the recent addition of immunotherapeutics. According to National Cancer Comprehensive Network guidelines, wide surgical resection with adequate margins is recommended in all but the most advanced cases. Margin status is one of the most notable prognostic factors for local control and overall survival for patients undergoing both endoscopic and open surgery. No comparisons have been made however, for patients with sinonasal melanoma who have undergone gross total resection (GTR) with or without positive margins. The authors sought to elucidate differences in oncologic outcomes based on margin status of patients who underwent a GTR with either endoscopic or open surgical techniques.

Methods: Patients with mucosal melanoma of the nasal cavity and paranasal sinuses without evidence of regional or distant disease treated with curative intent in part or full at Memorial Sloan Kettering Cancer Center from 1998-2013 were retrospectively assessed. Operative reports and post-operative imaging were used to limit the study to those patients who underwent GTR. Demographic information, prognostic factors, pathologic outcomes, and oncologic outcomes were assessed. Incidence rates were calculated via Kaplan-Meier and log-rank comparison was used to compare treatment groups.

Results: Sixty-seven patients met the eligibility criterion. Thirty-four (51%) patients had open partial or total maxillectomy with or without ethmoidectomy or sphenoidectomy via a transfacial approach, 14 (21%) patients had a more extensive craniofacial approach, and 18 (27%) patients had an endoscopic approach. There was no significant difference noted in preoperative AJCC tumor staging among the cohorts. Fifty-six patients had adjuvant radiation therapy (84%). Comparing open and endoscopic approaches in our heterogenous population, at three years there was no significant differences in local control (60.3% vs 48.7%, p=0.528), disease free survival (28.7% vs 13.0%, p=0.498), or overall survival (48.0% vs 59.9%, p=0.398). Comparing negative and positive margin patients undergoing GTR, at three years there was no significant difference in local control (65.1% vs 48.7, p=0.474), disease free survival (24.5% vs 24.9%, p=0.892), or overall survival (57.6% vs 43.9%, p=0.215). On multivariable analysis looking at tumor, surgical, pathological, and treatment factors, only tumor stage impacted oncologic outcomes (p=0.021)

Conclusion: In select sinonasal melanoma patients for whom an endoscopic gross total resection can be adequately performed, the oncologic control rates are similar to open approaches. Additionally, there was no statistically significant difference in survival outcomes in patients that had a negative or positive margin resection. It is important to note that our cohort represents a heterogenous group of patients, a majority of whom received adjuvant radiotherapy. Furthermore, many surgical patients, including those who have undergone endoscopic surgery may also be benefiting from recent advances in immune checkpoint inhibitor therapy. Further study with larger sample sizes should be pursued.

S045: INCIDENCE AND RISK FACTORS FOR MANDIBULAR OSTEORADIONECROSIS IN THE MODERN ERA

Sung Ho Moon, MD[1], Dominic H Moon, MD[2], Kyle Wang, MD[2], Mark C Weissler, MD[3], Trevor G Hackman, MD[3], Adam M Zanation, MD[3], Brian D Thorp, MD[3], Samip N Patel, MD[3], Jose P Zevallos, MD[3], Lawrence B Marks, MD[2], Bhishamjit S Chera[2]; [1]Department of Radiation Oncology, Research Institute and Hospital, National Cancer Center, Goyang, Korea, [2]Department of Radiation Oncology, University of North Carolina School of Medicine, Chapel Hill, North Carolina, [3]Department of Otolaryngology/Head and Neck Surgery, University of North Carolina School of Medicine, Chapel Hill, North Carolina

Purpose: To evaluate the incidence and risk factors associated with mandibular osteoradionecrosis (MORN) after radiation therapy (RT) for oral cavity (OC) and oropharyngeal (OP)

carcinoma.

Methods: Patients with OC or OP carcinoma treated with RT by a single radiation oncologist at a high volume tertiary academic institution between August 2009 and December 2015 were retrospectively reviewed. Patients receiving RT dose less than 60 Gy in 2-Gy fractions (or its equivalent), re-irradiation, and those with less than 6 months of follow-up were excluded. Most patients underwent a pre-RT dental evaluation and management including tooth extractions as deemed appropriate based on risk assessment. MORN was defined as exposure of the mandibular bone due to necrosis following RT with failure to heal after 3 months. A univariable Cox regression model was used to assess patient and treatment factors associated with the development of MORN. For those who developed MORN, mandible radiation dosimetric data were analyzed including maximum dose to the mandible (Dmax), mean mandibular dose (MMD), and the percent volume of mandible receiving 50 Gy (V50), 60 Gy (V60), and 70 Gy (V70).

Results: Of the 282 eligible patients, 30 were excluded based on the exclusion criteria, leaving 252 patients for analysis with a median follow-up of 25 months (range: 6-81 months). In this cohort, 73% of the patients had OP carcinoma and 85% received concurrent chemotherapy with RT. Three-dimensional conformal RT (3D-CRT) and intensity-modulated RT (IMRT) were delivered in 11% and 89% of patients, respectively. MORN developed in 14 patients (5.5%) with a median time to developing MORN of 8 months (range: 3-40 months). MORN occurred in 10% of OC patients compared to 3.8% of OP patients. MORN was more commonly seen when patients were treated with 3D-CRT (19%) compared to IMRT (4.0%). Factors associated with MORN on univariable analysis included primary diagnosis of OC vs. OP cancer (Hazard ratio [HR]: 3.0, p=0.04), smoking at the time of RT (HR: 3.1, p=0.04), mandibular invasion of the primary (HR: 3.7, p=0.04), pre-RT tooth extraction (HR: 4.52, p=0.01), and treatment with 3D-CRT vs. IMRT (HR: 5.1, p=0.003). Among the 14 patients with MORN, the mean Dmax, MMD, V50, V60, and V70 were 71.7 Gy, 49.0 Gy, 61%, 45%, and 17%, respectively, and were all higher in those receiving 3D-CRT compared to IMRT.

Conclusions: The incidence of MORN is low in the modern era at a high volume academic institution. Clinical factors that may increase the risk of MORN include oral cavity primary, mandibular bone invasion, pre-RT tooth extraction, continued smoking, and the use of 3D-CRT vs. IMRT.

S046: ENDOSCOPIC ENDONASAL APPROACH FOR TREATMENT OF SINONASAL TRACT AND NASOPHARYNGEAL ADENOID CYSTIC CARCINOMA

Ryota Kashiwazaki, MD, Meghan T Turner, MD, Eric W Wang, MD, Carl H Snyderman, MD, MBA, Seungwon Kim, MD; University of Pittsburgh Medical Center

Background: Adenoid cystic carcinoma (ACC) of the sinonasal tract and nasopharynx are rare malignancies characterized by insidious progression with high local and distant recurrence rates. The literature suggests that aggressive surgical resection with negative margins offers the best outcomes, but surgical treatment of these sites can have significant morbidity with limited improvement in overall survival. Our treatment philosophy includes aggressive surgical resection via the endoscopic endonasal approach (EEA) followed by adjuvant radiotherapy for ACC of the nasal cavity, paranasal sinuses, and nasopharynx with the goal of obtaining local control and preserving function.

Methods: A retrospective case series of sinonasal or nasopharyngeal adenoid cystic carcinoma treated with curative surgical intent treated at the University of Pittsburgh Medical Center between 2000-2014. Exclusion criteria included patients treated with open skull base surgery. Margin status was defined by two separate means: 1) positive vs. negative and 2) gross-total resection (macroscopically negative margins) and sub-total resection (macroscopically positive). Overall survival (OS) was calculated by the Kaplan-Meier method. Disease-free survival (DFS), local-recurrence, and distant recurrence rates were calculated using a competing risk model. Factors impacting survival were identified by univariate analysis.

Results: 34 patients were included in analysis. 26 patients (76.4%) underwent EEA, while 6 patients (20%) underwent some form of open maxillectomy followed by EEA for an attempt at negative margins. 26 patients (76.5%) had sinonasal tract tumors and 8 patients (23.5%) had tumors of the nasopharynx. The subsites in the

sinonasal tract included: maxillary sinus, 10 patients (29.4%), nasal cavity, 10 patients (29.4%); ethmoid sinus, 5 patients (14.7%), sphenoid 1 patient, (2.9%). The majority of patients had T3, T4a, and T4b disease, which represented 14.7%, 23.5%, and 50%, respectively. Gross-total resection (GTR) was achieved in 26 patients (76.5%). Subtotal resection (STR) was achieved in 8 patients (23.5%). Of those with GTR, negative microscopic margin status was only achieved in 3 patients (8.8%). Adjuvant radiotherapy and chemotherapy was administered in 28 patients (82.4%) and 11 patients (32.4%), respectively. OS, DFS, local recurrence, and distant recurrence rates were 61.8%, 47.1%, 20.6%, and 41.2%, respectively. The median follow-up duration for patients in this dataset was 3.185 years (mean = 3.864 years). There was no difference in OS, DFS, or LR based on GTR vs. STR of margins. Of patients with GTR, 60% survived, while 75% with STR survived (p = 0.66). Recurrence developed in 60% of patients with GTR vs. 25% of patients with STR (p = 0.209). Local recurrence developed in 25% of both groups (p = 1.000). Factors influencing survival and patterns of failure are being analyzed.

Conclusion: Treatment of the skull base for patients with sinonasal and nasopharyngeal ACC by EEA with adjuvant radiotherapy offers survival and local control similar to that reported by other groups that included open skull base surgery and sacrifice of function (orbital exenteration). We suggest that EEA with adjuvant radiation may be the best treatment option with the least morbidity for patients with this difficult to cure disease.

S047: SURVIVAL OUTCOMES OF HPV-RELATED OROPHARYNGEAL CANCER AND NODE-POSITIVE DISEASE WITHOUT ADJUVANT RADIATION

Farzad Masroor, MD, Deepak Gurushanthaiah, MD; Kaiser Permanente Northern California

Background: For patients with head and neck squamous cell carcinomas (HNSCC), adjuvant radiation is recommended for positive neck disease, close or positive margins, extracapsular extension, perineural invasion, or lymphovascular invasion. Human papilloma virus related oropharyngeal squamous cell carcinoma (HPV-related OPSCC) is a distinct subtype of HNSCC that presents with bulky cervical lymphadenopathy and carries an improved prognosis. For these patients with node-positive disease, we investigated whether adjuvant radiation improves survival.

Methods: A retrospective analysis of the Surveillance, Epidemiology, and End Results (SEER) program was done to identify patients with HPV-related OPSCC that underwent primary resection and neck dissection from 2004 to 2013. While SEER does not list HPV status, a previous histopathologic study by Chaturvedi et al determined which recodes used by SEER have a high specificity for HPV positivity in oropharyngeal cancer. These recodes were used to select two cohorts of patients. The first had the following criteria: T1-T2 disease, N1-N2b disease, M0 disease, resection of the cancer primary site, neck dissection, and no radiation treatment. The second cohort had the same criteria except adjuvant radiation was administered. The age, gender, and race characteristics were recorded. Cause-specific survival (cancer survival in the absence of other causes of death) was then determined at 1-5 years and compared for N1, N2a, and N2b disease.

Results: We identified 232 patients who underwent primary resection and neck dissection without adjuvant radiation, and 1607 patients who underwent adjuvant radiation. The cohorts were similar in terms of age, gender, and race. For N1 disease, there was no difference in 5-year survival (88.9% vs 89.4%, p 0.22). For N2a disease, there was no difference in 5-year survival (97.3% vs 96.2%, p 0.72). For N2b disease, there was a significant difference in 5-year survival (71.6% vs 87.4%, p 0.02).

Conclusion: Omitting adjuvant radiation in selected patients with HPV-related OPSCC and N1 or N2a necks with no other adverse features may be oncologically sound. Further research in de-escalation trials is needed to determine if N2a neck disease can be safely treated with surgery alone without sacrificing oncologic control.

S048: FACTORS THAT PREDICT MORTALITY IN PAPILLARY THYROID CARCINOMA

Omar Karadaghy, BLA, Dorina Kallogjeri, MD, MPH, Jay F Piccirillo, MD, FACS; Washington University

Importance: The AJCC staging system for papillary thyroid carcinoma (PTC) is based on the classic tumor, node, metastasis (TNM) morphological staging system and patient age, and

excludes important features of the host, such as comorbidity. Comorbidity is important to the prognostic estimates of cancer patients, and its incorporation into a staging system provides a more comprehensive description of the thyroid cancer patient.

Objective: Develop a new PTC clinical severity staging system that incorporates important tumor and host features to more accurately grade the prognostic severity of newly diagnosed PTC patients.

Design, Setting, and Participants: Retrospective cohort study of PTC patients diagnosed or treated at the Siteman Cancer Center between 1995-2012.

Main Outcomes and Measures: Overall survival.

Methods: Demographic, comorbid health, morphologic extent of tumor, treatment, and outcome information was obtained from the Barnes-Jewish Hospital Oncology Data Services Registry. Treatment was categorized as yes/no for surgery, radiation, or hormonal therapy. Univariable and multivariable Cox proportional hazard regression models were used to explore relationship of baseline patient and tumor features with survival. Conjunctive consolidation was used to create a new staging system that incorporated important patient and tumor information. Discriminative power of the new staging system was assessed through Harrell's c-index and internal validation was assessed through bootstrapping techniques.

Results: The cohort consisted of 1372 newly diagnosed, eligible PTC patients and there were 165 (12%) deaths. The mean age of the patients was 49 years (SD, 15.2); 1014 (74%) were female, and 1166 (86%) were white. The median time of follow-up was 78 months (range, 0-251 months). The 5-year survival rate of the whole cohort was: 92% (95% CI, 90.4% to 93.6%). After controlling for gender, race, and treatment in a multivariable Cox model, age, TNM staging, and comorbidity remained significantly associated with overall survival. Conjunctive consolidation model combined these three variables to create a new clinical severity staging system with 4 categories where 5-year survival rates (95% CI) were: Stage 1 (n=593) 99% (98% to 99%), Stage 2 (n=422) 92% (89% to 95%), Stage 3 (n=240) 84% (78% to 89%), and Stage 4 (n=117) 58% (47% to 68%). The survival gradient of the new staging system had a monotonic pattern with an overall survival gradient range of 41%, discriminative power of 0.77 (95% CI, 0.73 to 0.81), chi square for linear trend of 124.42, and variance reduction score of 0.17. In comparison, the current AJCC staging system had a monotonic pattern with an overall survival gradient range of 20%, discriminative power of .66 (95% CI, 0.61 to 0.71), chi square for linear trend of 56.26, and variance reduction score of .06.

Conclusions and Relevance: The clinical staging system, which incorporates age, comorbidity, and TNM stage had better predictive results than the current AJCC staging system. The inclusion of host features in addition to tumor morphology provides a more comprehensive staging system which improves prognostic accuracy. This comprehensive staging system can improve scientific reporting of disease outcomes, support comparative effectiveness studies, and guide clinical care by defining prognosis for newly diagnosed patients.

S049: BODY MASS INDEX AND COMPOSITION PREDICT SURVIVAL IN HEAD AND NECK CANCER PATIENTS WITH COMORBID CONDITIONS

Gina Y Chang, MPH, Michael Fattouh, BA, Thomas J Ow, MD, Keivan Shifteh, MD, Gregory Rosenblatt, PhD, Michael B Prystowsky, MD, PhD, Nicolas F Schlecht, PhD; Albert Einstein College of Medicine

Background: Obesity is known to be a risk factor for many diseases, including various cancers, cardiovascular disease, and diabetes. However, our previous study showed that increased Body Mass Index (BMI) prior to treatment in head and neck squamous cell carcinoma (HNSCC) patients predicts overall survival, independent of age, sex, smoking status, race/ethnicity, tumor site, stage, and treatment modality. Our objective in this follow-up study was to further investigate the independent relationship between pre-treatment BMI and survival among HNSCC patients by considering additional potential confounders. In order to assess this, we examined data on comorbidities commonly associated with obesity such as cardiovascular disease and diabetes, and medications such as metformin and HMG-CoA reductase inhibitors (statins), as well as sarcopenia.

Methods: We conducted a retrospective cohort study of 441 HNSCC patients

diagnosed and treated at Montefiore Medical Center in the Bronx, NY between 2004 and 2014. Clinical data including demographic information, vital status information, and tumor information were abstracted from electronic medical records and the cancer registry database. A retrospective medical records review was done to obtain additional clinical data on previous diagnoses and treatment of comorbid conditions, such as diabetes and cardiovascular disease (CVD). Patients were grouped based on pre-treatment BMI into either normal weight (BMI 18.5-24.9 kg/m^2) or overweight, which included both overweight (BMI 25.0-29.9 kg/m^2) and obese (BMI ≥30.0 kg/m^2). We also evaluated whether a subgroup of patients (n=85) had evidence of sarcopenia based on estimations of muscle cross-sectional area assessed from pre-treatment lumbar CT scans.

Results: Overweight patients had better overall survival compared to normal weight patients, regardless of CVD diagnosis status (stratified log-rank p<0.0001) or diabetes (p<0.0001). Among HNSCC patients diagnosed with CVD, overweight patients on statins had slightly better overall survival compared to patients not on statins, although the difference was not significant, whereas no difference in survival was observed for overweight or normal weight diabetic patients on metformin vs. not. Sarcopenia was inversely associated with overall survival (p=0.016). When stratified by BMI, patients without sarcopenia, regardless of BMI, had better overall survival than both normal weight and overweight patients with sarcopenia (p=0.039). Of the patients assessed for sarcopenia, 80.0% of normal weight patients and 48.9% of overweight patients had sarcopenia (Fisher's exact p=0.004).

Conclusions: Increased pre-treatment BMI is significantly associated with improved overall survival, independent of comorbidities associated with increased BMI such as CVD and diabetes. Among patients with CVD and diabetes, overweight patients had improved overall survival compared to normal weight patients regardless of statin or metformin use, respectively. Sarcopenia is inversely associated with overall survival independent of BMI.

S050: THE IMPACT OF MENTAL HEALTH COMORBIDITIES ON THE BOTTOM LINE IN HEAD AND NECK CANCER CARE

Diana D Jeffery, PhD[1], Art A Ambrosio, MD, MBA, LCDR, MC, USN[2], C. Allison Russo, DrPH[3], Laura Hopkins, MPA[3], Elizabeth A Kostas-Polston, PhD, APRN, FAANP, FAAN[4], Harry B Burke, MD, PhD[4]; [1]Defense Health Agency, [2]U.S. Navy, Department of Defense, [3]Kennell and Associates, [4]Uniform Services University for the Health Sciences

Background: What is the contribution of mental health comorbidities to healthcare costs and utilization in the Military Health System population of non-elderly adults with head and neck cancer?

Methods: A cross-sectional analysis of the Military Health System administrative claims data was conducted on all beneficiaries, age 18 – 64, with a principle diagnosis of head and neck cancer in fiscal years (FY) 2007 – 2014. We used general linear models to examine total annual costs (including pharmacy costs) and annual health care utilization which was defined as the number of ambulatory visits, the number of hospitalizations, and the number of admission days. Predictors were fiscal year; demographic variables, including type of beneficiary (active duty, family member, retiree), type and location of enrollment, system of care (military, community, both), cancer treatment modality, number of chronic diseases, tobacco use, and mental health comorbidities, including depression, anxiety, and adjustment disorders (DAA), and substance use disorders.

Results: The annual number of head and neck patients ranged from 2,480 (FY07) to 3,020 (FY10). The majority of patients were between 45-64 years of age, male, and nearly 62% were only treated in non-military healthcare settings. Within each year, approximately 22% of the patients experienced a depression, anxiety, or adjustment disorder comorbidity; 13% received a diagnosed substance use disorder, and 25% used tobacco. On average, approximately 6% of the patients had two or more mental health comorbidities during each year of observation. After controlling for other factors, the strongest predictors of total reimbursed costs (including pharmacy costs) were receipt of chemotherapy, presence of DAA, surgical resection, number of chronic diseases, and receipt of radiation therapy (p < 0.0001). Similarly, in separate models which examined the total number of outpatient visits, the total number of hospital admissions, and the number of hospital days, DAA was the

second strongest predictor ($p < 0.001$) following receipt of chemotherapy. After controlling for other factors, the diagnosis of a substance use disorder was a strong predictor ($p < 0.0001$) of the number of outpatient visits and the number of hospital admissions, but a weaker predictor of total costs ($p < 0.0001$) and the total number of hospital days ($p < 0.005$). Tobacco use was a moderately strong predictor ($p < 0.0001$) of annual reimbursed costs and the number of outpatient visits.

Conclusions: Treatment modality and the presence of mood disorder comorbidities account for most of the variance in costs and healthcare utilization among non-elderly adults with head and neck cancer. These findings are consistent with previous health services research that examined depression among cancer populations (e.g., Welch, Czerwinski, Ghimire, et al., 2009; Mausbach & Irwin, 2016). Despite limitations using administrative claims data, the findings underscore the importance of incorporating mental health and substance use screening and treatment throughout all phases of head and neck cancer care.

S051: SECOND PRIMARY IN OROPHARYNGEAL SQUAMOUS CELL CARCINOMA (OPSCC) – A SINGLE INSTITUTION EXPERIENCE

Ameya Asarkar, MD[1], Xiaohui Ma[1], Tara Moore-Medlin[1], Jose M Flores, MD, MPH[2], Cherie Ann Nathan, MD[1]; [1]LSU Health Sciences Center - Shreveport, [2]Johns Hopkins Schools of Medicine & Public Health

Introduction: The incidence of OPSCC has been increasing over the past few decades. Human papilloma virus (HPV) positive OPSCC have a better prognosis than HPV negative OPSCC at the time of diagnosis. However a subset of HPV+ patients do poorly and ~30% develop recurrent disease, mainly those with >10 pack-years smoking history. HPV+ smokers have improved outcomes compared to HPV- smokers, but significantly worse compared to HPV+ never smokers. However, the incidence of second primaries in HPV associated OPSCC has not been well studied.

Aims : We sought to determine the incidence of second primaries in a tertiary cancer center in Southern United States as our population have a substantially higher proportion of HPV+ OPSCC patients who smoke (72%) in comparison to most of the published literature. We also wanted to determine outcomes by race in our population.

Methods : Patients treated for OPSCC from 2001 to 2015 where tissue was available to assess HPV status. Demographics and outcomes including time to recurrence, HPV status, incidence of second primary, disease free survival (DFS) and overall survival (OS) were evaluated.

Results : The cohort included 304 patients. 222 (73%) patients were Caucasians and 82 (27%) were African Americans. Stage distribution as per AJCC included Stage 1 - 3%, Stage 2 – 9.2%, Stage 3 – 13.8%, Stage IV a – 63.8%, Stage IVb – 20%, Stage IVc – 1.6%. Median follow up was 20 months. 56.6% of our patients were HPV positive. Locally advanced (Stage III and IV) disease was higher in HPV negative than HPV positive patients (79.4% vs 59.2%, $p = 0.07$) Primary site recurrences developed in 9.5%, nodal recurrence in 7.2%, 6.9% developed distant metastasis and disease persisted in 22% of all the patients. The most common site for distant metastasis was the lung (68%). DFS at 3 and 5 years was 71.3% and 65.8% respectively. OS at 3 and 5 years was 85.8% and 79% respectively.

10% of our patients developed second primaries. The most common site for second primary was the lung (43%). On multivariate analysis, HPV status ($p = 0.015$) and site ($p = 0.033$) were significant determinants of second primary. Incidence of second primary in patients with tonsil cancer was higher than patients with base of tongue cancers (10.1% vs 7.6%). Second primaries in HPV positive smokers (8.2%) was not statistically different from HPV negative smokers (10.8%,$p=0.621$). On multivariate analysis, HPV status for second primaries was significant when the data was stratified according to race ($p = 0.014$)

Conclusion : HPV negative OPSCC smokers have a higher incidence of second primaries, but not significantly different from HPV positive smokers. There was a higher incidence of second primary associated with tonsil SCC. These findings further stress the importance of active surveillance as per the current NCCN guidelines especially in HPV positive smokers also.

S052: FACTORS ASSOCIATED WITH RECURRENCE AND DISTANT METASTASIS IN HPV-POSITIVE OROPHARYNGEAL SQUAMOUS CELL CARCINOMA (OPSCC) FOLLOWING TRANSORAL ROBOTIC SURGERY (TORS)

John R Sims, MD, Kathryn Van Abel, MD, Eliot J Martin, PAC, Daniel L Price, MD, Kerry D Olsen, MD, Eric J Moore, MD; Mayo Clinic - Rochester

Objective: To investigate specific surgical, pathologic, tumor, or patient factors associated with locoregional recurrence (LRR) or distant metastasis (DM) following TORS-based treatment of HPV-positive OPSCC.

Design: Retrospective review.

Setting: Tertiary care referral center.

Participants: 286 patients with HPV-positive OPSCC underwent TORS based treatment from 5/2007-5/2015.

Main Outcome Measures: LRR, DM, death from OPSCC, and any of these adverse oncologic outcomes.

Results: Of the 286 patients who met inclusion criteria, 254 (88.8%) were male, 181/263 (68.8%) had ≤10 pack years of smoking, 254/284 (89.4%) were pathologic T1/T2, and 225 (78.7%) were pathologic N>1. For primary treatment, 67 (23.4%) underwent surgery alone, 81(28.3%) underwent surgery and adjuvant radiation (S-RT), and 138 (48.3%) had surgery with adjuvant chemoradiation (S-CRT). Surgery alone was recommended in 35/60 (58.3%) patients, while 21/60 (35.0%) refused additional treatment and 4/60 (6.7%) were unable to complete additional treatment due to medical or surgical complications. A total of 20/282 (7.1%) patients experienced a LRR and 19/281 (6.8%) developed a DM. The median time to LRR or DM was 0.7 (range 0.2-7.0) and 1.9 (range 0.4-7.8) years respectively. Eleven (3.9%) patients died from OPSCC.

On univariable analysis, LRR was significantly associated with ≥2 attempts required for a negative margin (HR 3.68, p=0.004) and primary treatment with surgery alone (9.88, p<0.001). DM was significantly associated with perineural invasion (7.16, p=0.001), increasing pathologic N stage (1.90, p=0.001), extracapsular spread (11.79, p=0.016), increasing number and levels of positive nodes (1.24, p<0.001; 1.97, p<0.001), and nodal invasion of the sternocleidomastoid (6.46, p<0.001), the internal jugular vein (IJV) (9.61, <0.001), the spinal accessory nerve (4.62, p=0.016), or other cranial nerves (13.41, p<0.001). Patients with higher adult comorbidity evaluation-27 (ACE-27) scores (1.82, p=0.039), ≥2 attempts required for a negative margin (5.94; p=0.005), and nodal invasion of the IJV (8.35; p<0.001) or other cranial nerves (13.17; p=0.001) were at higher risk to die from OPSCC. On multivariable analysis, both increasing number of positive nodes (1.20, p<0.001) and primary treatment with surgery alone (6.52, p<0.001) were significantly associated with developing any adverse oncologic outcome (LRR, DM, or death from OPSCC).

Conclusions: Overall, the risk of LRR or DM after TORS-based treatment of HPV-positive OPSCC is low at 7.1% and 6.8%, respectively. When multiple attempts are required for a negative margin at the primary site, there is a significantly higher risk of LRR and death from OPSCC. Patients with perineural invasion at their primary site or advanced nodal disease (higher pathologic N stage, extracapsular spread, nodal invasion of adjacent structures) are at higher risk for DM. Single-modality surgical treatment was associated with a higher risk of LRR. While surgery alone is a viable treatment option in many low-risk patients, these patients should be closely followed postoperatively.

S053: PROGNOSTIC SIGNIFICANCE OF ANGIOLYMPHATIC AND PERINEURAL INVASION IN HUMAN PAPILLOMAVIRUS ASSOCIATED OROPHARYNGEAL CARCINOMA

William G Albergotti, MD, PhD, Phillip A Huyett, MD, Umamaheswar Duvvuri, MD, PhD, Robert L Ferris, MD, PhD, Jonas T Johnson, MD, PhD, Seunwon Kim, MD; University of Pittsburgh Medical Center

Background: Angiolymphatic invasion (ALI) and perineural invasion (PNI) are considered poor prognostic indicators in head and neck squamous cell carcinoma but their impact on prognosis in human papillomavirus (HPV) associated oropharyngeal squamous cell carcinoma (OPSCC) is unknown. Adverse prognostic factors in other head and neck cancer subsites have not been found to have the same significance in HPV+ OPSCC. Therefore, we hypothesized that there would be no association between presence of ALI and PNI in surgically-treated HPV+ OPSCC.

Methods: This is a retrospective review of all HPV+ OPSCC patients treated at the University of Pittsburgh Medical Center between 1980-2015. Only those with at least 1 year of follow-up were included. All patients were surgically treated (primary resection and neck dissection) with risk-adjusted adjuvant chemo/radiotherapy for a homogenous patient population. Only those patients with assessment of both ALI and PNI on pathology were included. Kaplan-Meier disease-free survival curves were generated for both ALI and PNI. Patients were then stratified as having 0 risk factors (no ALI or PNI (ALI/PNI score=0)), 1 risk factor (ALI or PNI (ALI/PNI score=1)) and 2 risk factors (both ALI and PNI (ALI/PNI score=2)) and Kaplan-Meier survival curves were generated. Multivariate analysis was performed using a Cox proportional hazard model.

Results: 180 patients were identified meeting inclusion/exclusion criteria. Angiolymphatic invasion was identified in 85/180 (47.2%) and perineural invasion was identified in 31/149 (17.2%). Patients had ALI/PNI scores of 0 (85/180, 47.2%), 1 (74/180, 41.1%), 2 (21/180, 11.7%). The overall recurrence rate was 22/180 (12.2%). The presence of ALI inferred a hazard ratio (HR) of 6.1 for recurrence (p=0.0002). PNI inferred a HR of 3.07 (p=0.01). Patients with either of ALI/PNI had a HR of 5.3 while both ALI/PNI inferred a HR of 12.2, despite a higher prescribed dose of adjuvant radiation with escalating ALI/PNI score (3800 vs. 4900 vs. 5700 cGy, p=0.0008) and chemotherapy (36% vs. 65% vs. 58%, p=0.001). ALI/PNI score remained significantly associated with disease-free survival on multivariate analysis controlling for T-stage, N-stage, radiation dose, use of chemotherapy (HR 6.8, p=0.004).

Conclusion: The presence of either ALI or PNI is associated with a worse prognosis in surgically-treated HPV+ OPSCC and the combination is additive. This work has implications for adjuvant therapy planning.

S054: A SYSTEMATIC REVIEW OF TRANSORAL LASER MICROSURGERY AND TRANSORAL ROBOTIC SURGERY FOR OROPHARYNGEAL CANCER

Jonathan Waxman, Naweed Raza; Wayne State University

Over the last several decades, nonsurgical organ-preserving treatment has become widely adopted for locally advanced head and neck cancers. Recently, however, transoral surgical approaches have increased in popularity due to numerous reports of comparatively favorable outcomes. Unfortunately, there has been little investigation comparing different tranoral surgical technologies. The aim of this systematic review is to summarize and synthesize the literature on transoral robotic surgery (TORS) anf transoral laser microsurgery (TLM) for oropharyngeal cancer with a focus on comparing their function and oncological outcomes. 18 TORS and 13 TLM studies, consisting of 947 TORS and 984 TLM patients, were included in this review. No randomized controlled trials or prior systematic reviewes comparing TORS versus TLM were identified. Among the TORS studies, 61.1%, 33.3%, 2.0%, and 3.6% of patients had a malignancy of the tonsils, base of tongue, soft palate, or pharyngeal wall, respectively. Among the TLM patients, 39.2%, 56.7%, 1.6%, and 2.4% of patients had a malignancy of the tonsils, base of tongue, soft palate, or pharyngeal wall, respectively. 71% of tumors among the TORS group were p16 positive, while 81.8% of the tumors of TLM patients were p16 positive. The percentages of Stage I, II, III, and IV oropharyngeal cancer among the TORS patients was 14.9%, 16.8%, 17.4%, and 50.9%, respectively. Among the TLM patients the percentages of Stage I, II, III, and IV was 3.2%, 7.2%, 20.8%, and 68.8%, respectively. 5.0% of TORS patients and 5.8% of TLM patients had positive margins on final pathology. Hemorrhage in the postoperative period, the most common complication for both approaches, occurred in 4.9% or TORS patients and in 7.5% of TLM patients. Long-term gastrostomy tubes were present in 2.8% or TORS patients and in 3.4% of TLM patients. Long-term tracheostomy tubes were present in 7.2% of TORS patients and in 4.1% of TLM patients. Finally, 2 year overall survival of TORS patients ranged from 76% to 91%, while for TLM patients it ranged from 82% to 100%. 2 year disease free survival of TORS patients ranged from 76% to 85%, while it ranged from 86% to 95% for TLM patients. Overall, the the functional and oncological outcomes of the two approaches were similar; however, direct comparisons based on existing literature was limited by differences in type and intensity of adjuvant therapy, lack of consistent reporting of HPV status, and differences among the types of functional and outcome data reported.

Oral Papers

S055: APPLICATION OF THE 8TH EDITION AMERICAN JOINT COMMITTEE ON CANCER STAGING SYSTEM FOR HPV-RELATED OROPHARYNGEAL CANCER TREATED WITH TRANSORAL ROBOTIC SURGERY

Arvind K Badhey, MD[1], A Olson[2], S Kadakia, MD[1], J E Russo, MD[3], P Ting, BS[3], M Khalid, BS[3], M Yao, MD[3], M S Teng, MD[3], E M Genden, MD[3], B A Miles, MD[3], R L Chai, MD[3]; [1]New York Eye and Ear Infirmary of Mount Sinai, [2]Department of Population Health Science and Policy, Icahn School of Medicine at Mount Sinai, [3]Department of Otolaryngology, Icahn School of Medicine at Mount Sinai

Importance: The 2017 8th edition of the American Joint Committee on Cancer (AJCC) staging system introduces separate clinical and pathologic classifications for HPV-related (HPV+) oropharyngeal squamous cell carcinoma (OPC). Limited data exists to evaluate the application of this system to patients treated with transoral robotic surgery (TORS)

Objective: To analyze a cohort of patients treated with TORS in the context of the AJCC 8th edition staging system.

Design, Setting, and Participants: Retrospective cohort study including 110 HPV+ OPC patients with a minimum of 1-year follow-up treated with TORS between 2007 and 2016 within a single tertiary health care system. Kaplan-Meier methods were used to estimate 3-year disease free survival and to test for differences in recurrence by extracapsular spread (ECS) status and adjuvant therapy. Multivariable Cox regression was used to identify factors associated with recurrence.

Main Outcomes and Measures: Pathologic restaging, oncologic outcomes, adjuvant therapy, and evaluation of clinicopathologic factors.

Results: 110 patients with a median follow-up of 54 months were analyzed. 85% of patients were male, with a median age of 60 years. 22% of patients received no adjuvant therapy, 43% received adjuvant radiation, and 35% underwent adjuvant chemoradiation. ECS was identified in 27% of patients. Overall survival was 100%, with estimated 3-year disease-free survival (DFS) of 87% (95% CI=77%-93%). Under the AJCC 7th edition staging system, 5% of patients were stage I, 11% stage II, 26% stage III, and 57% stage IVa. Within this system, 27 patients (25%) were upstaged on final pathology while 15 patients (14%) were downstaged. Under the AJCC 8th edition classification, 94% of patients were stage I for both clinical and pathologic staging systems. Six patients (5%) were upstaged on final pathology while 6 patients (5%) were downstaged. Gender, smoking status, ECS, adjuvant therapy, and number of positive nodes demonstrated no statistical significance for DFS on multivariable analysis for patients with either clinical or pathologic stage I disease. Within both clinical and pathologic stage I, Kaplan-Meier estimates for DFS did not reach statistical significance for patients receiving adjuvant therapy (log-rank P=0.56 and log-rank P=0.68, respectively) or with ECS (log-rank P=0.34 and log-rank P=0.60, respectively)

Conclusion and Relevance: In an analysis of patients treated at a tertiary referral center, the vast majority of patients undergoing TORS for HPV+ OPC are stage I under the new 8th edition AJCC staging system, with limited pathologic re-staging compared with the prior system. Oncologic outcomes are favorable for this group. No clinicopathologic features are significant for DFS within both clinical and pathologic stage I.

S056: LONG-TERM SURVIVAL OUTCOMES AND CAUSES OF MORTALITY IN ADVANCED STAGE OROPHARYGEAL SQUAMOUS CELL CARCINOMA

Jessica M Clark, MD, MSc, Daniel A O'Connell, MD, Lakshmi Puttagunta, MD, Jeffrey Harris, MD, Hadi Seikaly, MD, MAL, Vincent L Biron, MD, PhD; University of Alberta

Background: The incidence of oropharyngeal squamous cell carcinoma (OPSCC) is increasing secondary to oncogenic human papillomavirus (HPV). In comparison to HPV-negative OPSCC, patients with HPV-related OPSCC have favorable 5-year survival outcomes regardless of treatment modality. There is a paucity of studies addressing the long-term treatment outcomes of patients with OPSCC, especially those incorporating HPV positivity. The purpose of this study is to investigate long-term survival outcomes of advanced stage OPSCC, treated both surgically and non-surgically.

Methods: All OPSCC diagnosed and treated in the province of Alberta from 1998-2010 were identified through the Alberta Cancer Registry, a prospectively collected database. Demographic, pathologic and clinical treatment information was obtained and verified by chart reviews. P16-positivity was used a surrogate marker for HPV-related OPSCC, and was determined by tissue microarray analysis of formalin-fixed paraffin-embedded tumor specimens. Fluoroscopic studies were obtained and reviewed for evidence of dysphagia and aspiration. Survival comparisons were made between patients treated with non-surgery (chemotherapy and radiation therapy (CRT)) versus primary surgery with adjuvant therapy at 10 and 15 years post-treatment, stratified according to p16 positivity, using Kaplan Meier and Cox Regression analyses.

Results: 424 consecutive patients with OPSCC were treated with curative intent, of which 323 had advanced stage disease with complete p16 data and were included in the analysis. 54.1% of these patients had p16 positive disease and 80.1% were smokers (≥ 10 pack years). 76.6 % of patients were treated with primary surgery and radiation or chemoradiation (S+RT/S+CRT) and 23.4 % received CRT +/- salvage surgery. P16 positive patients had significantly lower rates of second primary tumors with improved 10 and 15-year survival regardless of treatment modality. Patients treated with CRT had significantly reduced 10 and 15-year survival compared to those who received primary surgery with or without adjuvant therapy. In both p16 positive and negative patients, the most common cause of mortality in patients treated with primary CRT was aspiration pneumonia. These patients also had significantly higher rates of dysphagia and aspiration as demonstrated by gastrostomy tube dependency rate and fluoroscopic swallowing studies.

Conclusion: In patients with advanced stage OPSCC, primary surgery with adjuvant therapy may result in higher long-term survival outcomes compared to primary chemoradiation therapy. This study suggests OPSCC patients who receive CRT have lower long-term survival secondary to aspiration pneumonia.

S057: COMPARATIVE ANALYSIS OF TWO ROBOTIC THYROIDECTOMY PROCEDURES: TRANSORAL VERSUS BILATERAL AXILLO-BREAST APPROACH

Hoon Yub Kim[1], Young Jun Chai[2], Gianlorenzo Dionigi[3], Angkoon Anuwong[4], Jeremy Richmon[5], Ralph Tufano, MD, MBA[6]; [1]Korea University Hospital, Korea University College of Medicine, Seoul, Korea, [2]Seoul National University Boramae Medical Center, Seoul, Korea, [3]Department of Surgical Sciences and Human Morphology, University of Insubria (Como-Varese), Varese, Italy, [4]Police General Hospital, Faculty of Medicine, Siam University, Bangkok, Thailand, [5]Massachusetts Eye and Ear Infirmary, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA, [6]Johns Hopkins Medicine, Baltimore, MD, USA

Background: Transoral robotic thyroidectomy (TORT) through oral vestibule draws attention recently because it requires minimal flap dissection and postoperative scar disappears in several weeks. However, the anatomical view of TORT is unfamiliar to surgeons and there are concerns over its safety. In this study, we evaluated initial surgical outcomes of TORT and compared them with those of bilateral axillo-breast approach robotic thyroidectomy (BABA RT) which is one of the most popular remote-access robotic thyroidectomy.

Method: Surgical outcomes of a single surgeon's initial 50 cases of TORT were compared with those of initial 50 cases of BABA RT. TORT and BABA RT were performed between 2012 to 2016, and 2008 to 2009, respectively.

Results: There were 49 and 46 females in the TORT and BABA RT group, respectively. There was no differences between the TORT and BABA RT group in the mean age (41.0 vs. 41.2 years, $p = 0.906$). The mean tumor size was 1.0cm in both groups. Total thyroidectomy was more frequently performed in BABA RT group (7 total, 43 less than total thyroidectomies in TORT group; 37 total, 12 less than total thyroidectomies in BABA RT group), ($p < 0.001$). Operation time was significantly shorter in the TORT than in the BABA RT group for total thyroidectomy (184.3 vs. 301.1 min, $p < 0.001$), and less than total thyroidectomy (215.8 vs. 234.8 min, $p = 0.200$). There were no significant differences between the TORT and BABA RT groups in transient vocal cord palsy rate (0% vs. 4.0%) and there was no permanent vocal cord palsy in

both groups. There was no transient or permanent hypoparathyroidism in TORT group and there were 14 transient and 6 permanent hypoparathyroidism in BABA RT group. In TORT group, paresthesia in the lower lip and the chin was present in nine patients (6 transient, 3 permanent), but no further paresthesia was reported after the initial 12 cases.

Conclusion: TORT could be performed safely in the selected patients. TORT might be a potential alternative approach for a surgeon who is experienced in remote-access thyroid surgery.

S058: META-ANALYSIS COMPARING OUTCOMES OF DIFFERENT TRANSORAL SURGICAL MODALITIES IN MANAGEMENT OF OROPHARYNGEAL CARCINOMA

Ahmed S Ibrahim, MD[1], Francisco J Civantos, MD[2], Giovana R Thomas, MD[2], Jason M Leibowitz, MD[2], David Arnold, MD[2], Elizabeth J Franzmann, MD[2], Elizabeth Nicolli, MD[2], Ka-Ming Lo, MPH[3], Zsuzsanna Nemeth, MLIS[4], Zoukaa Sargi, MD[2], Donald T Weed, MD[2]; [1]Department of Surgical Oncology, National Cancer Institute, Cairo University, Cairo, Egypt, [2]Department of Otolaryngology-Head and Neck Surgery, University of Miami School of Medicine, Miami, FL, USA, [3]Department of Epidemiology and Public Health, University of Miami, Miller School of Medicine, Miami, Florida, USA, [4]Department of Health Informatics, University of Miami Miller School of Medicine, Louis Calder Memorial Library

Importance: The optimal transoral surgical technique for oropharyneal carcinoma is currently unclear. There are no studies comparing the outcomes of all transoral surgical approaches and the accessibility provided by each approach.

Objective: To compare outcomes of transoral surgical approaches for oropharyngeal carcinoma with transoral laser surgery (TLS), transoral robotic surgery (TORS) and conventional direct transoral oropharyngectomy (DT).

Data Sources: MEDLINE was systematically searched through PubMed. Studies written in English and published from January 2003 until March 2016 were considered eligible. Reference lists were reviewed from all retrieved articles.

Study Selection: Studies reporting both oncological and functional results of either DT, TLS or TORS were included. Studies including benign lesions, non-oropharyngeal subsites, multiple approaches where outcomes were not reported separately by technique, or studies with 10 or fewer patients were excluded. A single study from each institution in each arm was included to prevent duplication of patients' data. If a single institution had more than one study with possible duplication of data, the largest series that met the inclusion criteria was included.

Systematic and manual search yielded 806 articles. 18 full-text articles met inclusion criteria.

Data extraction and synthesis: Data was independently extracted by two authors. Discrepancies were resolved in meetings with co-authors. Random-effects models were used to combine studies within each group and estimated a pooled estimate for rate with the corresponding 95% CI. Tests were performed to explore the heterogeneity between groups using subgroup analysis.

Main Outcomes: Functional outcomes, oncological outcomes, invaded or close margins on final pathology.

Results: Nine studies including 404 patients in TORS arm, 5 studies including 498 patients in TLS arm, and 4 studies including 355 patients in DT arm were included. Raw subsite data (tonsil or soft palate/ tongue base) were 66.1%/33.9% for TORS, 44%/56% for TLS, and 94.4%/5.6% for DT. Early T stage (T1-T2) for the TORS (89.5%; 95% CI: 82.8%, 93.7%) and direct transoral groups (87.4%; 95% CI: 81.7%, 91.5%) were higher compared to TLS group (59.7%; 95% CI: 44.1%, 73.5%). Difference between groups (q-value=19.805; df=2; $p<0.001$). Rates of positive or close margin on final pathology were (7.4%; 95% CI: 3.1%, 16.6%) for TLS, (8.8%; 95% CI: 4%, 18.3%) for TORS and (13.1%; 95% CI: 6.7%, 24.2%) for DT. The difference between groups was not significant (q-value= 1.230; df=2; $p=0.541$). There was no significant difference between groups in the rate of post-operative oropharyngeal bleeding (q-value=5.095; df=2; $p=0.078$), temporary tracheotomy (q-value=1.216; df=2; $p=0.544$) and gastrostomy dependence (q-value=0.051; df=2; $p=0.975$). Oncological outcomes could not be compared due to absence of individual patient data within each series but summary outcomes for each

series were excellent in all groups.

Conclusions: None of the surgical techniques showed a significant superiority functionally. While a limitation of this study is the inherent selection bias within each group, this analysis does show that both TLS and TORS achieve clear margins in the oropharynx with similar rates despite significantly higher T stage in the TLS group. Surgeon experience and resource availability remain primary factors in choosing one transoral technique over another.

S059: RACIAL DISPARITIES IN ACCESS TO TRANSORAL ROBOTIC SURGERY FOR OROPHARYNGEAL CANCER

Demetri Arnaoutakis, MD, John Wang, BA, Larry Myers, MD, John Truelson, MD, Baran Sumer, MD; University of Texas Southwestern Medical Center

Objectives: To identify local practice patterns and access disparities in transoral robotic surgery (TORS) for oropharyngeal squamous cell carcinoma (OSCC).

Study Design: Retrospective chart view

Methods: 296 patients diagnosed with OSCC from January 2013 to December 2016 at the University of Texas Southwestern Medical Center and affiliated hospitals were identified through a tumor registry. Patient demographics, cancer staging and treatment interventions were abstracted from the medical record. Treatment interventions included TORS, non-TORS open resection and chemoradiation therapy. We used univariate and multivariate logistic regression analyses to investigate the impact of race on being recommended to TORS for OSCC.

Results: Of the 75 patients who underwent TORS, 68 were Caucasian whereas only 7 were African-American or Hispanic. 221 patients comprised the non-TORS intervention group, of which 178 were Caucasian and 43 were either African-American or Hispanic. In univariate regression analysis, recommendation to TORS varied significantly by race, with African-American and Hispanic patients much less likely to undergo TORS for their OSCC (OR 0.42, 95% CI 0.18-0.99, p=0.04). With regards to gender, males were no more likely than females to undergo TORS (OR 1.14, 95% CI, 0.58 – 2.21, p=0.70). In multivariate regression analysis, African-Americans and Hispanics were marginally less likely to undergo TORS (OR 0.46, 95% CI, 0.19 – 1.09, p=0.07).

Conclusion: We observed significant racial disparities in access to TORS amongst our patient population. These results suggest a dire need to improve accessibility to novel health care options in racial minority groups.

S060: HISTOPATHOLOGIC EVALUATION OF FROZEN MARGINS AFTER TRANS-ORAL ROBOTIC SURGERY (TORS)

Kelly Magliocca, DDS, MPH[1], Christopher C Griffith, MD[1], Emily Barrow, MD[1], J. Trad Wadsworth, MD[2], Amy Y Chen, MD[1], Mark El-Deiry, MD[1], C. Arturo Solares, MD[1], H. Michael Baddour, MD[1], Danielle L Gainor, MD[1], Mihir Patel, MD[1]; [1]Emory University, [2]Moffit Cancer Center

IMPORTANCE: There is no standard protocol for assessment of margins at the time of trans-oral robotic surgery (TORS) for oropharyngeal squamous cell carcinoma (OPSCC). Primary tumors may be small and difficult to visualize grossly, necessitating complete circumferential and representative deep margin evaluation to ensure complete surgical removal of the tumor. Intraoperative consultation (IOC) for evaluation of margins obtained from a resection specimen (specimen-driven margins) oriented and labeled by the surgeon in partnership with pathologists maximizes interdisciplinary communication, improves achievement of negative margins, is accurate and may improve long-term local regional control.

OBJECTIVE: To determine impact of intra-operative frozen section immediately following TORS for OPSCC.

DESIGN, PARTICIPANTS, AND SETTING: A retrospective study from October 2014 to June 2016 of 33 consecutive patients with previously untreated p16 positive T1 or T2 OPSCC at a tertiary care academic comprehensive cancer center.

Materials and Methods: 33 patients underwent TORS for T1 or T2 OPSCC.

RESULTS: Thirty three consecutive male patients were identified with primary stage T1/T2 p16+ OPSCC, with an average age of 56 years. In 29 of 33 (88 %) cases IOC was requested for evaluation of margin status. For 28 of 29 (97%) cases, circumferential and representative deep margin were taken at IOC. Five of 29 (17 %) cases identified tumor cut through at a margin sampled intraoperatively from the resection specimen. All 5 were revised

to negative margin status by additional sampling from the tumor bed, in the same operative setting. Two of 33 (6 %) surgical cases revealed positive margins on the final pathology report. In one case, no IOC had been requested, and in the other case, only 3 margins of interest were evaluated at IOC and the positive margin was detected in an area not sampled for IOC. A total of 183 margin samples at IOC were evaluated, an average of 6.3 margins submitted for each patient. 181 of 183 pathologic diagnoses were concordant, resulting in 98.9 % accuracy. Mean follow-up time is 18 months. No patients have experienced local recurrence.

CONCLUSIONS AND RELEVANCE: Orientation and labeling of the definitive oropharyngeal resection specimen is best accomplished with the specimen in the fresh state and in collaboration with Pathology. IOC for complete circumferential and representative deep margin evaluation performed on samples obtained from the main resection specimen is accurate and results in excellent surgical margin control and is comparable to published data in other anatomic Head and Neck sub-sites. Additional follow-up will be required to determine the effect of such sampling on local recurrence rates.

S061: NIVOLUMAB VERSUS INVESTIGATOR'S CHOICE THERAPY AMONG PATIENTS WITH HUMAN PAPILLOMAVIRUS (HPV)-ASSOCIATED SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK (SCCHN): UPDATED RESULTS FROM CHECKMATE 141

ML Gillison[1], K Harrington[2], Rl Ferris[3], J Guigay[4], G Blumenschein, Jr.[5], J Fayette[6], Ad Colevas[7], N Kiyota[8], Jw Shaw[9], M Monga[9], M Lynch[9], F Taylor[10], M DeRosa[10], L Morrissey[10], K Cocks[10], Nf Saba[11]; [1]The Ohio State University, [2]Royal Marsden NHS Foundation Trust/The Institute of Cancer Research, [3]University of Pittsburgh Medical Center Cancer Center, [4]Centre Antoine Lacassagne, [5]MD Anderson Cancer Center, [6]Centre Leon Berard, [7]Stanford University, [8]Kobe University Hospital, [9]Bristol-Myers Squibb, [10]Adelphi Values, [11]Winship Cancer Institute

Background: Nivolumab, an anti-programmed death-1 monoclonal antibody, significantly prolonged overall survival (OS) and improved patient-reported outcomes (PROs) vs single-agent standard therapy of investigator's choice (IC) in patients with platinum-refractory recurrent or metastatic (R/M) SCCHN. Tumor HPV status is a strong and independent prognostic factor for OS among patients with R/M SCCHN. Here we present the first PRO results by HPV status and an update from additional follow-up assessing the influence of tumor HPV status on efficacy in CheckMate 141.

Methods: CheckMate 141 was a randomized, open-label, phase 3 trial in which patients with R/M SCCHN that progressed within 6 months of platinum-based chemotherapy were randomized (2:1) to nivolumab (n=240) or IC (n=121; either methotrexate, docetaxel, or cetuximab). Tumor HPV status evaluated by p16 immunohistochemistry was assessed per protocol for patients with oropharyngeal cancer. Exploratory PRO endpoints were evaluated with the European Organization for the Research and Treatment of Cancer (EORTC) Quality-of-Life Questionnaire-Core 30 (QLQ-C30), the EORTC head and neck cancer-specific module (EORTC QLQ-H&N35), and the generic health status three-level European Quality of Life-5 Dimensions (EQ-5D-3L) questionnaire. PROs were assessed at baseline, week 9, and week 15. OS was estimated by the Kaplan-Meier method, stratified by prior cetuximab use. Prespecified and post-hoc analyses were performed to assess treatment effect by tumor HPV status. Between-treatment arm differences in changes in PROs were assessed by analyses of covariance, adjusted for prior cetuximab use and baseline PRO value. Data cutoff was August 9, 2016 for OS and May 5, 2016 for PRO assessments.

Results: Tumor p16 status was available for 184 patients, including 63 and 29 p16-positive and 55 and 37 p16-negative tumors in the nivolumab and IC arms, respectively. After a minimum follow-up for OS of 11.4 months, median OS for patients with p16-positive tumors was 8.8 (95% confidence interval [CI] 6.5-11.7) vs 4.4 (95% CI 3.0-9.8) months in the nivolumab vs IC arms (hazard ratio [HR] 0.63; 95% CI, 0.38-1.04). For patients with p16-negative tumors, median OS was 7.7 (95% CI, 4.8-13.8) vs 6.5 (95% CI 3.9-8.7) months (HR 0.64, 95% CI 0.40-1.03). In the nivolumab vs IC arms, objective response rates were 15.9% vs 3.4% for p16-positive and 14.5% vs 10.8% for p16-negative patients. Over the first 15 weeks of follow-up, PROs generally remained stable for nivolumab-treated patients but worsened for IC-treated patients.

Between-treatment arm differences in physical, role, and cognitive functioning, as well as fatigue and dyspnea were significantly better for nivolumab-treated patients than IC-treated patients for both p16-positive and p16-negative patients. Changes in pain, sticky saliva, and malaise more strongly favored nivolumab over IC among patients with p16-positive tumors than those with p16-negative tumors.

Conclusions: Patients with both p16-positive and p16-negative R/M SCCHN experienced prolonged survival with nivolumab vs IC. PROs across 3 questionnaires generally favored nivolumab over IC for both p16-positive and p16-negative patients.

S062: A NOVEL BIOINFORMATIC METHOD TO EVALUATE THE IMAGING CHARACTERISTICS AND PREDICT EXTRACAPSULAR EXTENSION IN LYMPH NODE METASTASIS ASSOCIATED WITH HPV POSITIVE OROPHARYNGEAL SQUAMOUS CELL CARCINOMA.

Jonathan C Garneau, MD, Anthony B Costa, PhD, Brett A Miles, DDS, MD, FACS; Icahn School of Medicine at Mount Sinai - NY

Objective: Radiographic assessment of cervical lymph node metastasis in oropharyngeal squamous cell carcinoma (OPSCC) has been shown to have high inter-observer variability and poor prediction of important clinical features such as histologic extracapsular spread. Furthermore, cystic metastatic lymph nodes have become a recognized phenomenon within the HPV positive subset of OPSCC and its radiographic implications remain to be fully elucidated. We have developed a novel imaging volumetric analysis tool that obtains objective, quantitative measurements based on computed tomography images with the goals of further illustrating the role of cystic lymph nodes and strengthening radiologic detection of extracapsular spread.

Methods: We obtained contrast enhanced computed tomography images from 40 patients with HPV positive (confirmed by PCR), OPSCC who underwent a transoral robotic resection and selective neck dissection. In addition, patient demographics, smoking status, and surgical pathology reports were collected to determine the final pathologic status of the lymph node metastasis. Using 3DSlicer as an image outlining software platform, our volumetric analysis technique was applied to the dominant metastatic lymph node of each patient. We precisely calculated the nodal volume, radiodensity (Hounsfield Units), presence of cystic foci or necrosis, and exact percentages of cystic or necrotic content when present. Based on numerical data from the software and clinical patient data, statistical analysis with Fisher's exact test, Mann-Whitney U test, and logistic regression models were used to investigate the clinical utility of the software's metrics as a potential platform to predict extracapsular extension.

Results: In our patient cohort, there was a statistical relationship between the presence of a cystic node and the histologic diagnosis of extracapsular spread (Fisher's Exact Test, p-value<0.01). Adjusting for age, smoking status, size of primary tumor, and nodal volume, increasing the amount of cystic component occupying a metastatic lymph node predicted a lower probability of having extracapsular spread ($\hat{q}$= -5.7, p = 0.02). Nodal volume, attenuation values, and amount of necrosis were not associated extracapsular spread.

Conclusion: Our pilot study describes the development of one of the first volumetric analysis techniques that precisely calculates the volume, radiodensity, and percentage of cystic component of metastatic cervical lymph nodes. Our technique has the potential to yield clinically useful information such as objective, radiographic features that predict the diagnosis of extracapsular spread, which has implications for adjuvant therapy. Further development of this novel technique is ongoing, including validation in larger samples, the correlation of findings with radiologists' interpretation, full automation of lymph node analysis, and determining predictive algorithms. This technology may produce important biomarkers for pretreatment planning, patient counseling, and determining surgical candidacy.

S063: HIGH-DOSE OR LOW-DOSE CISPLATIN CONCURRENT WITH RADIOTHERAPY IN LOCALLY ADVANCED HEAD AND NECK SQUAMOUS CELL CANCER

Szu-Yuan Wu, MD, MPH[1], Chia-Lun Chang, MD[2], Kevin Sheng-Po Yuan[3]; [1]Department of Radiation

Oncology, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan, [2]Department of Hemato-Oncology, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan, [3]Department of Otorhinolaryngology, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan

Purpose: Large, prospective, randomized studies comparing low-dose or high-dose concurrent chemoradiotherapy (LD- or HD-CCRT, respectively) are scarce.

Patients and methods: In this study, 7010 patients with stage III or IV head and neck squamous cell carcinoma (HNSCC) were enrolled and categorized into 2 groups: Group 1, comprising those undergoing LD-CCRT (n = 1470) ,and Group 2, comprising those receiving HD-CCRT (n = 5540). HD-CCRT was defined as one bolus of cisplatin (90-100 mg/m2, at least twice), and LD-CCRT was defined as 30–40 mg/m2 weekly (at least 5 times).

Results: Both univariate and multivariate Cox regression analyses revealed that age ≥65 years, male, higher Charlson comorbidity index (CCI) scores, RT duration ≥7.5 weeks, and clinical stage IV were significant independent prognostic risk factors for overall survival (OS). HD-CCRT and surgical intervention were significant independent prognostic protective factors for OS. After adjustment for confounders, the adjusted hazard ratio (aHR; 95% confidence interval [CI]) for overall mortality in patients with nonoral cavity HNSCC undergoing HD-CCRT was 0.74 (0.57-0.64, P = .014), whereas that in those with oral cavity HNSCC undergoing HD-CCRT was 0.92 (0.76-1.12, p = 0.401). Moreover, the aHR (95% CI) for overall death in patients with nonoral cavity HNSCC receiving adjuvant HD-CCRT was 0.90 (0.75-1.08, P = .235), whereas that in those with oral cavity HNSCC receiving adjuvant HD-CCRT was 0.83 (0.74-0.93, P < .001) .

Conclusions: HD-CCRT can reduce the incidence of death in patients with stage III or IV HNSCC. However, no such reduction is applicable to definitive CCRT for oral cavity cancer or adjuvant CCRT for nonoral cavity cancer.

S064: OBJECTIVE AND SUBJECTIVE HYPOSALIVATION AFTER TREATMENT FOR HEAD AND NECK CANCER: LONG TERM OUTCOMES

Ilya Likhterov, MD[1], Ashley Olson, PhD[2], Cindy Ganz[1], Mark L Urken, MD[1], Raymond Chai, MD[1], Jerry Liu, MD[1], Robert Stewart, MD[1], Bruce Culliney, MD[1], Daisy Palacios, RN[1], Cathy L Lazarus, PhD[1]; [1]Mount Sinai Beth Israel, [2]Mount Sinai School of Medicine

Purpose/Objective(s): Patients undergoing primary or adjuvant radiotherapy demonstrate impairment in saliva flow post-treatment. Reduction in salivary flow can have an impact on diet outcomes and patient-perceived quality of life (QOL). This study examined saliva weight by treatment, including surgery, surgery + (chemo) radiotherapy (CRT), radiotherapy (RT), and chemoradiotherapy (CRT) in head and neck cancer patients. Outcomes were examined at baseline, 3, 6, 12, 24 and 36-60 months post-treatment. Saliva weight was correlated with diet, patient-perceived dry mouth, eating, and swallowing impairment. Rates of hyposalivation were examined by site of disease.

Materials/Methods:
598 patients (435 males and 163 females) were included in this study. 141 patients were treated with surgery alone, 46 with surgery + RT; 58 with surgery + CRT, 50 with RT alone, and 303 with CRT. Mean stimulated salivary weight was determined at each time-point using the Saxon Test1. Diet was examined using the "Normalcy of Diet" domain on the Performance Status Scale. Patient-perceived dry mouth and altered intra-oral sensation/dysguesia were examined using the "dry mouth" and "senses" questions on the EORTC HN35 QOL scale. Eating and swallowing QOL were examined using the Eating Assessment Tool (EAT-10) and the MD Anderson Dysphagia Inventory (MDADI), global score. A multilevel multivariable regression model was used to examine the association between saliva weight and time from treatment, diet, complaint of dry mouth and altered taste, MDADI global score, and eating QOL. Among individuals receiving CRT, we investigated if dry mouth, eating QOL and diet improved over time.

Results: Across treatment groups, the largest reduction in salivary flow occurred at 3 months post-treatment (Figure1). Patients in the Surgery Alone group demonstrated least change in saliva flow over time (Figure 1). Overall, saliva flow decreased in the first 6 months and improved thereafter, with return to baseline by 36+ months for surgery only group and improvement approaching, though

not reaching baseline in the CRT group by 36+ months. Among those receiving CRT, complaint of dry mouth was significantly higher than baseline at three months post treatment, but improved to baseline levels by 12 months. Diet and eating QOL also declined from baseline until 24 and 36 months, respectively.

Conclusion: Saliva weight decline was highest in the chemoradiotherapy group, with improvement by 36+ months. Similar decrements in saliva weight were seen in patients with surgery +CRT. The least change in saliva weight was seen in the surgery alone group. This is the first study to correlate diet and perception of dry mouth with a saliva weight test. This simple test precludes the need for salivary flow rate testing that is not readily available to clinicians.

1Kohler, P.F. and M.E. Winter, A quantitative test for xerostomia. The Saxon test, an oral equivalent of the Schirmer test. Arthritis and rheumatism, 1985. 28(10): p. 1128-32.

S065: THE UTILITY OF ELECTIVE NECK DISSECTION IN NODE-NEGATIVE FLOOR OF MOUTH SQUAMOUS CELL CARCINOMA

Meghan M Crippen, MS, Sei Y Chung, BS, Jacob S Brady, BA, Jean A Eloy, MD, Soly Baredes, MD, Richard Chan W Park, MD; Rutgers New Jersey Medical School

Importance: In the treatment of squamous cell carcinoma (SCC) of the floor of the mouth (FOM), appropriate management of the clinically node-negative (cN0) neck is controversial. There is a paucity of data on which to base clinical decisions when weighing the risks and benefits of an elective neck dissection versus observation alone.

Objective: Using population-based data, analyze the impact of elective neck dissection (END) versus observation on survival outcomes in cN0 FOM SCC.

Design, Setting, and Participants: The Surveillance, Epidemiology, and End Results (SEER) database was queried for all cases of FOM SCC from 1998 to 2013 (n=6161).

Main Outcomes and Measures: Patients undergoing END and observation alone were compared for disease-specific survival (DSS) within groups of specific T stage and histological grade.

Results: In an evaluation of early-stage FOM SCC, defined as all T1 and T2 cases (n=3940), END did not significantly increase DSS versus observation alone. In contrast, patients with later stage disease (T3/T4, n=2221) benefitted from END with a significant increase in DSS (p=<0.001). On further histologic analysis of each subgroup, survival in early stage disease remained unaffected by END when assessed by histologic grade. In the late-stage subgroup, only patients with tumors classified as "moderately differentiated" benefitted from END (p=<0.001), while patients with tumors considered "well differentiated" or "poorly differentiated/undifferentiated" found no significant difference when managed with observation alone (p=0.425, p=0.263 respectively). On analysis of each individual T stage overall, END significantly increased survival for T2, T3, and T4 patients (p= 0.05, p=0.05, p=<0.001 respectively).

Conclusions: Elective next dissection should be strongly recommended in patients with T2, T3, and T4 floor of mouth SCC, and may be of particular benefit in larger tumors with moderately differentiated cytology.

S066: SUBMANDIBULAR GLAND TRANSFER FOR THE PREVENTION OF OSTEORADIONECROSIS AND XEROSTOMIA IN RADIATED PATIENTS

Harry H Ching, MD, Nathaniel H Reeve, MD, Robert C Wang, MD; University of Nevada School of Medicine

Introduction: The adverse effects of radiation therapy for head and neck cancer include xerostomia, dysphagia, and osteoradionecrosis. Submandibular gland transfer (SGT) with submental shielding is one strategy to prevent xerostomia with a growing body of literature to support its use. After years of performing SGT, a possible observed benefit at our institution has been the prevention of osteoradionecrosis. This study evaluates quality of life, osteoradionecrosis, and PET scan findings after SGT.

Methods: Patients with head and neck cancer who underwent SGT prior to definitive radiation therapy at a single institution from 2006 to 2016 were retrospectively reviewed and compared to a control group who did not undergo SGT. The standard SGT procedure involves movement of the contralateral submandibular gland to the submental triangle with subsequent radiation shielding. Post-radiation quality of life was evaluated with the University of Washington QOL questionnaire. Post-radiation PET scans were examined

for hypermetabolic activity at the transposed submandibular gland. Osteoradionecrosis was evaluated clinically.

Results: A total of 42 patients were included in the study (SGT group = 32 patients; control group = 10 patients). Primary tumor sites were oropharynx (n=20), base of tongue (n=17), nasopharynx (n=3), hypopharynx (n=1), and glottis (n=1). All patients underwent definitive radiation therapy (RT) or chemoradiation with a dose of at least 66 Gy. There were no postoperative complications. At a mean follow-up of 4.9 years, 72% of patients in the SGT group reported no or mild xerostomia, while all 10 patients in the control group reported severe to complete loss of saliva. Based on the University of Washington QOL questionnaire, the median scores for salivary loss and salivary thickness for the SGT group were 20 and 20, respectively, and 40 and 45 for the control group. Patients in the SGT group had significantly improved scores compared to patients in the control group in terms of salivary loss (Mann-Whitney U = 242, n1 = 25, n2 = 10, $P < 0.001$) and salivary thickness (Mann-Whitney U = 193, n1=25, n2=10, $P < 0.01$). The overall quality of life scores were also significantly improved in the SGT group (Mann-Whitney U = 209, SGT median = 250, control median = 361, $P < 0.01$). There were no cases of osteoradionecrosis in the 32 patients who underwent SGT at a mean follow up of 4.3 years. PET scan imaging following RT revealed increased uptake in the transposed submandibular gland in 10 of 24 (42%) post-radiation scans. There was no significant association between increased FDG uptake and QOL outcomes.

Conclusions: Submandibular gland transfer is an effective option for preservation of salivary function in patients who undergo radiation therapy. Patients undergoing SGT have improved quality of life outcomes at long-term follow-up. SGT may reduce the risk of osteoradionecrosis after radiation. PET scans can show increased uptake in the transposed gland, which is a potential source of false positive readings

S067: A CLINICAL TRIAL EVALUATING 5-AZACYTIDINE IN THE TREATMENT OF HPV-ASSOCIATED HEAD AND NECK CANCER PATIENTS

Michael Hajek, Cyril Gary, Andrew Sewell, MD, Asel Biktasova, MD, PhD, Barbara Burtness, MD, Hari Deshpande, MD, Natalia Issaeva, PhD, Wendell G Yarbrough, MD, MMHC, FACS; Yale School of Medicine

Human papilloma virus (HPV)-associated head and neck squamous cell carcinoma (HNSCC) affects different patients, carries a different prognosis, and is driven by different molecular mechanisms, as compared to HPV-negative HNSCC. Based on this, we sought to develop a targeted, de-escalated treatment for HPV-associated HNSCC. We found HPV-associated HNSCC cell lines and patient derived cells are much more sensitive to the FDA approved, epigenetic drug, 5-azacytidine than HPV-negative cells. Our lab has also shown that 5-azacytidine slows tumor growth and prevents metastatic spread of HPV-positive HNSCC in a mouse xenograft model. Based on our data, a window clinical trial was initiated at the Yale Cancer Center. Here, we report the data from our 5-azacytidine clinical trial in patients with HPV-associated head and neck cancer.

Utilizing real time-PCR, we examined changes in gene expression in biopsies from head and neck cancer patients treated with 5-azacytidine. In agreement with our mouse data shown previously, we demonstrated that matrix metalloproteinase expression is drastically reduced after treatment with 5-azacytidine in patients with HPV-positive HNSCC. Furthermore, we demonstrated that the expression of all HPV genes, including the HPV major oncogenes E6 and E7, is also down-regulated after 5-azacytidine treatment. Furthermore, p53 is stabilized and its expression is increased with the treatment. After only 5 days of treatment, apoptosis is induced in HPV+ HNSCC by caspase activation. Qualitatively, patients reported no side effects, and several of them reported improved pain and ability to swallow. Given these findings, along with findings previously shown by our lab, we show that 5-azacytidine selectively causes cell death and reduced metastatic potential in HPV-positive head and neck cancer in patients. Moreover, the treatment is safe and carries no side effects, making it an attractive, targeted chemotherapeutic for HPV-associated HNSCC.

S068: CONTEMPORARY TRENDS AND OUTCOMES IN THE MANAGEMENT OF SALIVARY GLAND CARCINOMA: A NATIONAL CANCER DATABASE REVIEW

Jay Ferrell, MD, Daniel Clayburgh, MD, PhD; Oregon Health and Science University

Introduction: Salivary gland carcinomas are rare and constitute a heterogenous group of malignant neoplasms with a broad range of histologic subtypes and clinical behaviors. As a result, management approaches can be variable and remain an area of ongoing controversy. While surgery is the standard primary treatment, the ideal role and outcomes of adjuvant radiation (RT) and chemoradiation (CRT) therapy have yet to be fully elucidated, particularly in regards to specific histologic subtype.

Methods: A retrospective review was performed of multicenter pooled data from the national cancer database of patients diagnosed and treated between 2004 and 2014. Cases involving mucoepidermoid carcinoma, adenoid cystic carcinoma, acinic cell carcinoma, and adenocarcinoma were then abstracted. Clinical parameters, treatment modalities, and survival outcomes were then examined and analyzed. Survival analysis was further stratified based on AJCC staging and treatment group, and a subgroup analysis based on histologic subtype was performed.

Results: A total of 17,098 patients were abstracted for this review. 52% were female and 48% were male with a mean age of 58.6 years (range 18-90 years). Parotid malignancies represented the most common primary site (78.8%), and mucoepidermoid carcinoma was the most common histologic diagnosis (n=6491; 38%) followed by adenocarcinoma (n=3890; 22.8%), acinic cell carcinoma (n= 3411; 19.9%), and adenoid cystic carcinoma (n= 3306; 19.3%). Approximately 78% of patients (n=13,405) underwent primary surgical resection. Furthermore, among patients undergoing surgery, 45% received no adjuvant treatment, 46.5% received adjuvant radiation (RT), and 8.5% received adjuvant chemoradiation therapy (CRT). Subgroup analysis of the four histologic subtypes revealed varying outcomes based on treatment modality and clinical staging. Acinic cell carcinoma was associated with the highest 5-year survival rates regardless of treatment modality. When comparing surgery + RT to surgery + CRT, CRT was associated with poorer overall survival although the rates varied considerably across the histologic groups. For acinic cell carcinoma the difference in 5-year survival rates for RT versus CRT were far less dramatic (86.1% vs 75.4%) than for adenoid cystic (82.3% vs 66.5%), mucoepidermoid (72.3% versus 54.3%), or adenocarcinoma (63.6% vs 42%). Finally, survival rates based on AJCC staging group were also significantly different between the subgroups. While increasing stage was consistently associated with worse survival, advanced stage (III/IV) portended a much poorer prognosis for mucoepidermoid and adenocarcinoma compared to acinic cell and adenoid cystic carcinoma.

Conclusion: While surgery remains the mainstay of treatment, the role of multimodality therapy in the management of salivary gland carcinomas remains controversial. Based on the results of this large review, survival outcomes associated with adjuvant RT versus CRT are divergent and varied significantly depending on histologic subtype. Moreover, the implications of advanced AJCC stage on survival also contrasted significantly depending on histology. These findings suggest that the utility of clinical staging and efficacy of adjuvant therapy for salivary gland carcinomas may be dependent on tumor histology, and larger, prospective studies focused on tumor histology may be clinically valuable.

S069: INCIDENCE OF DE NOVO HEAD AND NECK CANCER AFTER LIVER TRANSPLANTATION AT A SINGLE INSTITUTION

Ryan C Graham[1], Jeffrey S Mella[2], Richard S Mangus, MD, MS, FACS[1]; [1]Indiana University School of Medicine, [2]UTHSC San Antonio

Introduction: All solid organ transplant patients are at increased risk of developing de novo cancer in the post-transplant period because of their immunosuppressed state. Many of these patients develop cancers of the head and neck. This study seeks to characterize the incidence and risks factors of post-liver transplant de novo head and neck cancers among 1685 transplant recipients over a 15 year period at a single institution, where all patients received antibody-based induction immunosuppression.

Methods: The records of 1685 consecutive adult, deceased donor liver transplant (LT) recipients with a minimum 1-year follow-up from 2001 to 2015 were retrospectively reviewed. Incidence of de novo head and neck

cancer was extracted from the original patient population of 1685. There were 121 patients positively identified as having developed de novo head and neck cancer post-LT. The medical records of these 121 patients were analyzed to determine demographics, history of cancer pre-LT, de novo cancer type and location, treatment modalities, and alcohol and tobacco exposure prior to LT.

Results: Of the original 1685 patients, 103 (6%) developed cutaneous, and 24 (1%) developed non-cutaneous, head and neck cancer post-LT. Risk factors for non-cutaneous head and neck cancer included alcoholic liver disease (75% vs 25%, p<0.001) and tobacco exposure (67% vs 33%, p=0.08), with 63% of these patients reporting a smoking history greater than 20 pack-years. Risk factors for cutaneous head and neck cancer included male gender, White race (100%, p<0.01), older age (48% for age 60 and older, p<0.001), and less severe liver failure. History of non-liver cancer pre-LT was not a significant risk factor for development of de novo head and neck cancer post-LT.

Conclusion: This large population of LT patients receiving induction immunosuppression had an overall risk of head and neck cancer of 7%, with cutaneous cancers accounting for 6% and non-cutaneous cancers for 1%. Risk factors for cancer formation included gender, age, race, severity of liver failure and use of tobacco and alcohol. Additionally, patients with a history of any non-liver cancer before liver transplant do not appear to be at increased risk for development of de novo head and neck cancer in the post-transplant period.

S070: PROGNOSTIC FACTORS AND SURVIVAL IN ADENOID CYSTIC CARCINOMA OF THE SINONASAL CAVITY

Ashley C Mays, MD, Ehab Y Hanna, MD, Renata Ferrarotto, MD, Diana Bell, MD, Dianna Roberts, PhD, Jack Phan, MD, Natalie Silver, MD, Collin F Mulcahy, Michael E Kupferman, MD, Shirley Y Su, MD; MD Anderson Cancer Center

Background: Adenoid cystic carcinoma (ACC) of the sinonasal cavity is a rare disease with poor long term prognosis. Optimal treatment and prognostic factors affecting long-term survival have yet to be clearly defined.

Objectives: To determine the relationship between tumor specific characteristics, presenting symptoms, and treatment type on overall and disease-free survival

Methods: A retrospective review of patients presenting to MD Anderson Cancer Center from 1980 to 2016 with ACC treated with curative intent.

Results: 160 patients met inclusion criteria. The median age at presentation was 52.3 years. There was an even sex distribution (50.6% males). The median follow-up time was 55 months (range 3-263 months). Fifty-eight percent of patients (n=80) were staged T4 at initial presentation with 95% of patients (n=137) staged N0. Forty-three percent of patients (n=68) had no prior treatment, 20% (n=32) presented with persistent disease and 38% (n=60) with recurrent disease, respectively. Five-year OS and DFS were 67.0% and 49.0%, respectively. Ten-year OS and DFS were 44.8% and 25.4%, respectively. Five- and ten-year locoregional control (LRC) values were 69.1% and 53.8%, respectively. Patients with persistent disease and untreated disease had improved OS when compared to those with recurrent disease, (p<0.001 and p=0.034, respectively). Solid type histology (p<0.001), symptom of pain at presentation (p=0.002), presence of large nerve perineural invasion (p=0.037), bony invasion histologically (p=0.002), skull base extension (p=0.018), and epicenter in the sinus (p<0.001) were negative prognostic indicators for OS. Solid type histology (p=0.026) and presence of large nerve perineural invasion (p=0.041) were associated with reduced DFS. There was a trend toward improved OS and DFS with negative margins at resection, however these findings were not statistically significant.

Conclusions: In this large cohort of patients with ACC of the sinonasal cavity with extended follow up, long-term survival and LRC for patients with ACC of the sinonasal cavity remains poor. Several factors were associated with adverse outcomes, including solid type histology, large nerve perineural invasion, bony invasion, skull base extension and pain on presentation. These patients are targets for future research and the development of therapeutic modalities aimed at improving survival.

S071: ADJUVANT THERAPY FOLLOWING SURGERY FOR HEAD AND NECK CUTANEOUS SQUAMOUS CELL CARCINOMA

Brianna N Harris, MD, Ahmed Bayoumi,

Michael G Moore, MD, Shyam Rao, MD, D. Gregory Farwell, MD, FACS, Arnaud F Bewley, MD; UC Davis

Introduction: Cutaneous squamous cell carcinoma (CSCC) is one of the most common malignancies worldwide. There is conflicting evidence as to the indications for and benefits of adjuvant therapy for advanced CSCCs of the head and neck.

Methods: Retrospective analysis of patients with head and neck CSCC treated with primary resection with or without adjuvant therapy at a single academic institution. Demographic and patient data were compared between treatment groups with a Chi-squared analysis. Disease free survival (DFS) and overall survival (OS) were analyzed using a Kaplan Meier (KM) Survival Analysis with Log-Rank Test and a Cox Multivariate Regression.

Results: 212 patients met inclusion criteria with a mean age of 70.4, 87.3% of which were men. The mean follow-up time was 35 months (median 21.5) and the 5-year KM estimate of disease free survival (DFS) and overall survival (OS) were 53.2% and 42.9%. 75 patients (35.3%) received adjuvant radiation and 9 patients (4.2%) received adjuvant chemoradiation. There were no differences in the proportion of patients receiving adjuvant therapy when comparing patients by age, sex, presence of lymphovascular invasion, tumor location or tumor diameter. Patients with recurrent tumors ($p = 0.035$), perineural invasion (PNI) ($p < 0.001$), increased depth of invasion (DOI) ($p = 0.023$), poorly differentiated tumors ($p = 0.018$), and regionally metastatic disease ($p = 0.001$) were more likely to receive adjuvant therapy. There was no benefit to adjuvant therapy in DFS or OS when compared with KM survival analysis with Log-Rank Test. When controlling for demographic and tumor data with a Cox Multivariate regression, patients treated with adjuvant therapy had no difference in their risk of recurrence, however they did have a significantly reduced risk of death (HR 0.42 $p = 0.023$). In a subset analysis of high-risk patients with recurrent tumors, PNI, or poorly differentiated tumors, the reduction in the risk of death associated with adjuvant therapy was even greater (HR 0.35 $p = 0.016$).

Conclusion: In our series of surgically treated patients with CSCC of the head and neck, delivery of adjuvant therapy was more common when patients had recurrent tumors, PNI, increased depth of invasion (DOI), poor differentiation or regionally metastatic disease. Patients treated with adjuvant therapy had a reduced risk of death, particularly when tumors were recurrent, had PNI or poor differentiation.

S072: FACTORS IMPACTING TREATMENT APPROACHES FOR SINONASAL SQUAMOUS CELL CARCINOMA: A NATIONAL CANCER DATA BASE ANALYSIS

Jennifer R Cracchiolo, MD[1], Krupa Patel[2], Benjamin R Roman, MD, MSHP[1], Jocelyn C Migliacci, MA[1], Sean M McBride, MD, MPH[1], Ian Ganly, MD, PhD[1], Luc Morris, MD, MSc[1], Viviane S Tabar, MD[1], Marc Cohen, MD, MPH[1]; [1]MSKCC, [2]Weill Cornell Medical College

Background: According to National Comprehensive Cancer Center (NCCN) guidelines, primary surgery is recommended for treatment of T1-T4a sinonasal squamous cell carcinoma (SNSCC). There is limited knowledge of national trends in the primary treatment strategy for SNSCC. The authors sought to elucidate the tumor and non-tumor factors that correlate with deviation from NCCN guidelines in the treatment of SNSCC.

Methods: Patients with SNSCC in the National Cancer Data Base (NCDB) who were diagnosed from 1998 through 2012 were analyzed for overall demographic and clinical trends and for factors related to practice patterns. Tumor, patient, and institution-specific factors that contributed to selecting surgery as primary treatment were examined using multivariable logistic regression. A secondary analysis of factors among those undergoing primary surgery that contribute to overall survival was performed utilizing multivariable Cox proportional hazard regression.

Results: There were 3956 patients with SNSCC and complete information on TNM staging, comorbidities, and primary treatment. A majority of the patients were white (85%) and male (64%). Lymph node metastases were reported in 225 patients (6%) and distant metastases were reported in 107 patients (3%). Half of the patients were treated in an academic center and 60% of patients had government insurance.

Lymph node metastasis OR 2.18 CI 1.65-2.89, $p<0.001$), maxillary sinus location (maxillary sinus vs nasal cavity: OR 1.28 CI 1.09-1.51, $p=0.003$), and treatment at a high volume center (48-154 cases)

versus low volume hospital (1-8 cases) (OR 1.34, CI 1.05-1.70, p=0.017) were associated with selecting primary surgery. In addition, advanced age (>80 years; OR 0.59, CI 0.45-0.77, p< 0.001), black race (OR 0.63, CI 0.50-0.80, p<0.001), and government insurance (OR 0.75, CI 0.64- 0.89, p=0.001) predicted for deviation from primary surgical treatment. Thirty percent of patients with T4b tumors had a primary surgical intervention.

When primary surgery was utilized, lower T stage (T1 vs T4a: HR 0.60, CI 0.47 – 0.78, p<0.001), node negative disease (N- vs N+: HR 0.40, CI 0.32- 0.52, p<0.001) and negative margin resection (negative vs microscopic positive margin: HR 0.63, CI 0.51-0.77, p<0.001; negative vs macroscopic positive margin: HR 0.68, CI 0.55-0.85, p=0.001) were associated with improved overall survival.

Conclusion: Tumor and non-tumor factors are associated with the degree NCCN guidelines are followed for treatment of SNSCC. When primary surgery is selected, tumor factors drive overall survival outcomes.

S073: LIMITED PREDICTIVE VALUE OF THE NATIONAL SURGICAL QUALITY IMPROVEMENT PROGRAM RISK CALCULATOR FOR USE IN HEAD AND NECK ONCOLOGY SURGICAL PATIENTS

Peter S Vosler, MD, PhD, Mario Orsini, Danny J Enepekides, MD, Kevin M Higgins, MD; University of Toronto

Importance: The ability to accurately predict perioperative complications is essential to determine patient selection and the safety of any planned surgical intervention in head and neck oncology patients.

Objective: To evaluate the accuracy of the National Surgical Quality Improvement Program Risk Calculator (NSQIP-RC) in predicting postoperative complications of head and neck oncology surgical procedures at a major tertiary/quaternary referral centre in Canada.

Design, Setting, and Participants: Retrospective cohort review of patients with head and neck cancer treated surgically at a tertiary referral academic center from 07/2015 to 08/2016 were was evaluated using the NSQIP-RC. Predicted outcomes at 30 days postoperatively by the NSQIP-RC were compared with observed outcomes for patients undergoing glossectomy, composite oral cavity resection, total laryngectomy, and thyroidectomy.

Main Outcomes and Measures: Brier scores and area under receiver operating curve (ROC) were calculated based on the observed versus the predicted complication rate for pneumonia, cardiac events, urinary tract infections (UTI), surgical site infections (SSI), venous thromboembolism (VTE), renal failure, readmission rate, return to operating room (ROR), death, and discharge to nursing or rehabilitation facility.

Results: Comparison of observed versus predicted outcomes were evaluated in 56 patients that underwent head and neck cancer surgery. The NSQIP-RC, based on a Brier score of less than 0.01, was accurate in predicting the complications of readmission, renal failure, VTE, and death. The calculator underestimated the complication rate of overall serious complications (53%), ROR (33%), SSI (72%), cardiac complication (100%), and pneumonia (50%). It overestimated the complication rate of discharge to a nursing facility (200%). Stratification by surgery performed (glossectomy, laryngectomy, and composite resection), and substratification based on use of microvascular free flap reconstruction demonstrated improved predictive value of the NSQIP-RC of having any complication for hemiglossectomy and partial glossectomy with and without microvascular reconstruction, and total laryngectomy without microvascular reconstruction.

Discussion: The NSQIP-RC has limited efficacy for predicting postoperative complications in various head and neck cancer surgeries. The predictive value of the metric can be improved by inclusion of several factors likely important for risk stratification in head and neck oncology patients not included in the NSQIP-RC including, prior radiation or chemotherapy, need for microvascular versus local flap reconstruction, TNM stage, nutritional status, and current alcohol abuse. Improved prediction of potential complications will lead to an improved safety profile and decreased complications in head and neck cancer patients.

Oral Papers

S074: AVELUMAB (ANTI-PD-L1) IN COMBINATION WITH CHEMORADIOTHERAPY (CRT) VS CRT IN FIRST-LINE TREATMENT OF LOCALLY ADVANCED SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK (LA-SCCHN): JAVELIN HEAD AND NECK 100 PHASE 3 TRIAL

Nancy L Lee, MD[1], Robert L Ferris, MD, PhD[2], Kevin J Harrington, MD[3], Robert I Haddad, MD[4], Jean Bourhis, MD, PhD[5], Makoto Tahara, MD, PhD[6], Margarida Geraldes, PhD[7], Dimitry S.A Nuyten, MD, PhD[7], Zelanna Goldberg, MD[7], Ezra Cohen, MD[8]; [1]Memorial Sloan Kettering Cancer Center, [2]University of Pittsburgh Medical Center, [3]The Institute of Cancer Research Chester Beatty Laboratories, [4]Dana-Farber Cancer Institute, Harvard Medical School, [5]Centre Hospitalier Universitaire Vaudois (CHUV) University of Lausanne, [6]National Cancer Center Hospital East, [7]Pfizer Inc., [8]Moores Cancer Center, University of California

Background: Cisplatin added to definitive radiotherapy is a standard of care (SOC) treatment for patients with LA-SCCHN. Although treatment is associated with increased local control rates and prolonged overall survival (OS) compared with radiotherapy alone, the risk of disease recurrence is still high: after 3 years, disease recurs in approximately 40% of patients. Chemotherapy has been shown to have immunostimulatory effects by increasing neoantigen release, and both chemotherapy and immunotherapy can be radiosensitizing. Radiotherapy can also modify the immune response to allow for synergistic effects when combined with immunotherapy. Avelumab is an investigational fully human IgG1 anti–PD-L1 monoclonal antibody with efficacy and manageable safety in several tumor types. The combination of avelumab with CRT may take advantage of multiple immune-mediated mechanisms of action to activate a robust and enduring antitumor response and improve long-term disease control.

Trial Design: JAVELIN Head and Neck 100 (NCT02952586) is a multicenter, international, randomized, double-blind, phase 3 trial comparing avelumab + cisplatin-based CRT vs CRT as first-line treatment for patients with previously untreated LA-SCCHN. The primary objective is to demonstrate superiority of avelumab + CRT in prolonging progression-free survival (PFS) compared with CRT alone. Eligible patients have histologically confirmed LA-SCCHN of the oral cavity, oropharynx, larynx, or hypopharynx and are candidates for definitive cisplatin-based CRT. Patients with human papillomavirus (HPV)-positive (high risk) or HPV-negative tumors are eligible. Other eligibility criteria include an ECOG PS of 0 or 1 and no prior systemic treatment for advanced disease. Approximately 640 patients will be randomized (1:1), and randomization will be stratified by tumor stage (

Poster Listing

B001: OTOLARYNGOLOGY RESIDENT SUPRACLAVICULAR, SUBMENTAL, AND OTHER REGIONAL FLAP EXPOSURE IN THE UNITED STATES Andrew T Day, MD[1], Liyang Tang, BS[1], Jeremy D Richmon, MD[2], Urjeet A Patel, MD[3], Kevin S Emerick, MD[2]; [1]Johns Hopkins Medical Institutions, [2]Massachusetts Eye and Ear Infirmary, [3]Northwestern University

B002: PATIENT RISK FACTORS AND POSTOPERATIVE COMPLICATIONS MOST ASSOCIATED WITH INCREASING LENGTH OF HOSPITAL STAY FOLLOWING FREE FLAP RECONSTRUCTION OF THE HEAD AND NECK Sana H Siddiqui, BA, Aparna Govindan, BA, Dominick V Congiusta, BS, MPH, Jean Anderson Eloy, MD, Soly Baredes, MD, Richard Chan W Park, MD; Rutgers New Jersey Medical School

B003: USABILITY OF ADVANCED PNEUMATIC COMPRESSION FOR THE TREATMENT OF HEAD AND NECK LYMPHEDEMA RELATED TO CANCER Harvey N Mayrovitz, PhD[1], Shelly Ryan, PT, CLT, LANA, STAR[2]; [1]Nova Southeastern University, [2]Mercy Hospital

B004: SURVIVAL PROGNOSTIC FACTORS OF METACHRONOUS SECOND PRIMARY HEAD AND NECK SQUAMOUS CELL CARCINOMA Szu-Yuan Wu, MD, MPH[1], Tsung-Ming Chen, MD[2]; [1]Department of Radiation Oncology, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan, [2]Department of Otolaryngology, Shuang-Ho Hospital, Taipei Medical University

B005: IMPACT OF NODAL LEVEL DISTRIBUTION ON SURVIVAL IN PAROTID GLAND SQUAMOUS CELL CARCINOMA: A POPULATION BASED STUDY Kajal P Shah, BS, Grace C Iparraguirre, BA, Jacob S Brady, BA, Neil V Nadpara, BA, Tapan Patel, MD, Jean A Eloy, MD, Soly Baredes, MD, Richard Chan W Park, MD; Rutgers New Jersey Medical School

B006: INDEPENDENT OF PRE-TREATMENT WEIGHT LOSS, SURVIVAL IS INCREASED IN PATIENTS DEVELOPING SEVERE WEIGHT LOSS DURING CONCOMMITANT CHEMOTHERAPY AND RADIATION THERAPY FOR ADVANCED OPERABLE SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK Casey G Sheck, DO, Shawn Shaikh, BS, Mckenzie Montana, BS, Jessica Tyrrell, Michael A Davis, DO, Danielle Tamburrini, DO, Gus Slotman, MD; Inspira Health Network

B007: ENTRECTINIB, A HIGHLY POTENT, BRAIN-PENETRANT PAN-TRK, ROS1, AND ALK INHIBITOR, IS EFFICACIOUS IN MOLECULARLY DEFINED HEAD AND NECK CANCERS Alan L Ho, MD, PhD[1], Ge Wei, PhD[2], Robert Shoemaker, PhD[2], David Luo[2], Edna Chow Maneval, PhD[2], Pratik Multani, MD[2], Jason Christiansen, PhD[2], Zachary Hornby[2], Gary Li, PhD[2], Alexander Drilon, MD[1]; [1]Memorial Sloan Kettering Cancer Center, [2]Ignyta, Inc.

B009: ANGIOSARCOMA OF THE SCALP AND FACE: PATTERNS OF METASTASIS, AND EFFECTS OF SURGICAL INTERVENTION Christoph M Prummer, MD, Jeffrey R Janus, MD; Mayo Clinic Rochester

B010: METASTATIC LYMPH NODE BURDEN AND SURVIVAL IN HEAD AND NECK CANCER Allen S Ho, MD, Sungjin Kim, MS, Mourad Tighiouart, PhD, Cynthia Gudino, Alain Mita, MD, Kevin Scher, MD, Ravi Prasad, MD, Stephen L Shiao, MD, PhD, Nabilah Ali, Chrysanta Patio, Zachary S Zumsteg, MD; Cedars-Sinai Medical Center

B011: PREDICTIVE FACTORS OF METASTASIS IN ADENOID CYSTIC CARCINOMA OF THE MINOR SALIVARY GLANDS. Ashley Hay, Dr, Jocelyn Migliacci, Miss, Daniella Karassawa Zanoni, Dr, Snehal Patel, Dr, Ian Ganly, Dr; MSKCC

B012: CUTANEOUS SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK- PRESENTATION OF DISEASE AMONG MINORITIES Heng R Wang, MD[1], Bradley A Schiff, MD[1], Aaron D Burkenroad[2], Bryan Swenson[2], David Ciocon[1], Beth N McLellan[1], Richard V Smith[1], Bijal D Amin[1], Thomas J Ow[1]; [1]Montefiore Medical Center, [2]Albert Einstein College of Medicine

B013: LOCOREGIONALLY RECURRENT HEAD AND NECK SQUAMOUS CELL CARCINOMA: INCIDENCE, SURVIVAL, PROGNOSTIC FACTORS, AND TREATMENT OUTCOMES Szu-Yuan Wu, MD, MPH[1], Kevin Sheng-Po Yuan, MD[2]; [1]Department of Radiation Oncology, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan, [2]Department of Otorhinolaryngology, Wan Fang Hospital, Taipei Medical University, Taipei, Taiwan

Poster Listing

B014: FIELD TESTING OF AN INNOVATIVE APP IN INDIA REVEALS THAT OVER 40% OF INDIVIDUALS CHEW BETEL NUT - FIRST DATA FROM AN AHNS FUNDED PROJECT Matt Lechner, MD, PhD[1], Helen Hudson, RN[2], Charles E Breeze, PhD[2], Wendell G Yarbrough, MD[3], Francis Vaz, MD[1], Dheeraj Kumbhar, MD[4], Valerie J Lund, MD, CBE[1], Vaijayanti Pethe, PhD[4], Dhananjay Kelkar, MD[4], Paul O'Flynn, MD[1]; [1]University College London Hospitals, [2]University College London, [3]Yale School of Medicine, [4]Deenanath Mangeshkar Hospital

B015: NONLOCALIZATION OF SENTINEL NODES IN HEAD AND NECK MELANOMA AND MERKEL CELL CARCINOMA Kate Clancy, BA[1], Nishant Jain, BA[1], Rod Rezaee, MD[2], Nicole Fowler, MD[2], Pierre Laveru, MD[2], Paul Faulhaber, MD[3], Kord Honda, MD[4], Chad A Zender, MD[2]; [1]Case Western Reserve School of Medicine, [2]University Hospitals Cleveland Medical Center ENT Institute, [3]University Hospitals Cleveland Medical Center Nuclear Medicine, [4]University Hospitals Cleveland Medical Center Dermatology

B016: NOVEL USE OF FIDUCIAL MARKERS IN SURGICAL RESECTION MARGINS DURING TRANSORAL SURGERY OF THE OROPHARYNX TO ASSIST IN ADJUVANT RADIATION PLANNING Ryan S Jackson, MD[1], James Martin, MD[1], Jason T Rich, MD[1], Mackenzie Daly, MD[2], Hiram Gay, MD[2], Wade Thorstad, MD[2]; [1]Department of Otolaryngology - Head and Neck Surgery, Washington University School of Medicine, [2]Department of Radiation Oncology, Washington University School of Medicine

B018: PRELIMINARY SWALLOWING OUTCOMES IN PATIENTS WITH OROPHARYNGEAL CANCER UNDERGOING CHEMORADIATION Weitao Wang, MD, Glenn T Schneider, MD, MS, Catherine Sligar, MA, CCCSLP, Gerriann Jackson, MS, CCCSLP, Paul G van der Sloot, MD; University of Rochester

B019: EDUCATION OF NURSES REGARDING THE CARE OF PATIENTS UNDERGOING LARYNGECTOMY AND TRACHEOSTOMY Suzanne E Smart, MD[1], Sandy Wade, RN[2], Anna M Pou, MD[1]; [1]LSUHSC-New Orleans, [2]Our Lady of the Lake Regional Medical Center

B020: PATTERNS OF RECURRENCE FOLLOWING STEREOTACTIC BODY RADIATION THERAPY OF LYMPH NODE RECURRENCES OF HEAD AND NECK SQUAMOUS CELL CARCINOMA Clark M Hatheway, BA, Brian J Gebhardt, MD, John A Vargo, MD, Diane C Ling, MD, Robert L Ferris, MD, PhD, Dwight E Heron, MD, David A Clump, MD, PhD; UPMC

B021: ADENOID CYSTIC CARCINOMA: LONG-TERM EXPERIENCE AT A TERTIARY CARE CENTER Mark Mims, Phillip Huyett, Seungwon Kim; UPMC

B022: THE USEFULNESS OF COMBINED MEASUREMENTS OF SQUAMOUS CELL CARCINOMA ANTIGENS 1 AND 2 IN DIAGNOSING INVERTED PAPILLOMA AND SINONASAL SQUAMOUS CELL CARCINOMA Ryuji Yasumatsu, MD, Takafumi Nakano, MD, Ryunosuke Kogo, MD, Kazuki Hashimoto, MD, Takashi Nakagawa, MD; Kyushu University

B023: ASSESSING THE INCIDENCE OF DEATH BEYOND MALIGNANCY IN PATIENTS WITH HEAD AND NECK CANCER Neel Sangal, BA, Monica Azmy, BS, Yung-Jae Lee, BA, Jean Anderson Eloy, MD, Soly Baredes, MD, Richard Chan W Park, MD; Rutgers New Jersey Medical School

B024: OPIOID PRESCRIBING PRACTICES BY HEAD AND NECK SURGEONS Kate Clancy, BA[1], Emily Ahadizadeh, BS[1], Jason Thuener, MD[2], Kathryn Hoppe, MD[2], Katrina Harrill, RN, BSN[2], Nicole Fowler, MD[2], Rod Rezaee, MD[2], Pierre Lavertu, MD[2], Chad A Zender, MD[2]; [1]Case Western Reserve School of Medicine, [2]University Hospitals Cleveland Medical Center-ENT Institute

B025: OPIOID PRESCRIBING PATTERNS AND ASSOCIATED CLINICAL FACTORS IN PATIENTS UNDERGOING SURGERY FOR ORAL CAVITY CANCER. Kathryn R Tringale, BS, John Pang, MD, Viridiana J Tapia, MPH, Kevin T Brumund, MD, Charles S Coffey, MD, Robert A Weisman, MD, Timothy Furnish, MD, Aria Jafari, MD, Quyen Nguyen, MD, PhD, Jeffrey P Harris, MD, PhD, Joseph A Califano, MD; University of California - San Diego

Poster Listing

B027: THE APPLICATION OF ULTRASOUND IN DETECTING LYMPH NODAL RECURRENCE IN THE TREATED NECK OF HEAD AND NECK CANCER PATIENTS Chi-Maw Lin[1], Cheng-Ping Wang[3], Chun-Nan Chen[3], Che-Yi Lin[3], Ting-yi Li[1], Chen-Han Chou[1], Ya-Ching Hsu[2], Po-Yen Kuo[1], Tsung-Lin Yang[3], Pei-Jen Lou[3], Jenq-Yuh Ko[3], Tseng-Cheng Chen[3]; [1]National Taiwan University Hospital, Yulin Branch, [3]National Taiwan University Hospital, [2]National Taiwan University Hospital, Hsin-Chu Branch

B028: SURVIVAL OUTCOMES FOR SURGERY ALONE VERSUS SURGERY AND RADIATION THERAPY AMONG PATIENTS WITH SALIVARY ADENOID CYSTIC CARCINOMA Tara J Wu, BA, Annemieke van Zante, MD, PhD, Ivan H El-Sayed, MD, Jonathan R George, MD, MPH, Chase M Heaton, MD, P. Daniel Knott, MD, Marika D Russell, MD, William R Ryan, MD, Rahul Seth, MD, Melody J Xu, MD, Sue S Yom, MD, PhD, Patrick K Ha, MD; University of California, San Francisco

B029: THE IMPACT OF TRAINING LEVEL ON COMPLICATIONS AFTER PAROTIDECTOMY Jacob S Brady, BA, Andrey Filimonov, PharmB, Kristen Echanique, BS, Jean A Eloy, MD, Soly Baredes, MD, Richard Chan W Park; Rutgers New Jersey Medical School

B030: UTILITY OF ROUTINE CT SCREENING VERSUS CLINICAL EXAM IN HEAD AND NECK CANCER SURVEILLANCE Jacob C Lucas, Mauricio A Moreno, MD, Emre Vural, MD; University of Arkansas for Medical Sciences

B031: INCIDENCE, CHARACTERISTICS, AND SIGNIFICANCE OF INCIDENTAL INCREASED THYROID UPTAKE ON 18F-FDG PET/CT Alexa Castellano, MD[1], Sandra Ngo, MD[2], Simon Bekker, MD[3], Arun Sharma, MD, MS[1]; [1]Division of Otolaryngology-Head and Neck Surgery, Southern Illinois University School of Medicine, Springfield, IL, [2]Department of Radiology, Southern Illinois University School of Medicine, Springfield, IL, [3]Central Illinois Radiological Associates, Springfield, IL

B032: TREATMENT OF MINOR SALIVARY GLAND CANCERS BY THE ENDOSCOPIC ENDONASAL APPROACH. Meghan T Turner, MD, Leila J Mady, MD, PhD, MPH, Seungwon Kim, MD, Carl H Snyderman, MD, MBA, Eric W Wang, MD; University of Pittsburgh Medical Center

B033: FACTORS IMPACTING SURGICAL TREATMENT CHOICE AND SURVIVAL FOR SINONASAL ADENOID CYSTIC CARCINOMA: A NATIONAL CANCER DATA BASE ANALYSIS Julianna E Pesce, MD[1], Jennifer R Cracchiolo, MD[1], Jocelyn C Migliacci, MA[1], Benjamin R Roman, MD[1], Luc G Morris, MD[1], Ian Ganly, MD, PhD[1], Sean McBride, MD[2], Vivianne Tabar, MD[3], Marc A Cohen, MD, MPH[1]; [1]Head and Neck Service, Department of Surgery, Memorial Sloan Kettering Cancer Center, New York, New York, [2]Department of Radiation Oncology, Memorial Sloan Kettering Cancer Center, [3]Department of Neurosurgery, Memorial Sloan Kettering Cancer Center

B034: MULTIVARIATE ORAL RINSE MODELS PREDICT HEAD AND NECK SQUAMOUS CELL CARCINOMA (HNSCC) Michael Donovan, Professor and Chief Clinical Officer[1], Kris Curtis[2], Greg Ginn[2], Elizabeth Franzmann, Professor and Chief Scientific Officer[3]; [1]Icahn School of Medicine at Mt. Sinai, [2]VIgilant Biosciences, [3]University of Miami

B035: LOCALIZED ABLATION OF THE THYROID GLAND USING MAGNETIC RESONANCE-GUIDED HIGH-INTENSITY FOCUSED ULTRASOUND IN AN ANIMAL MODEL. Mai G Al Khadem, MBBCh[1], Vaninder K Dhillon, MD[1], Ari Partanen[2], Krishnarao V Tangella, MD, MBA[3], Nicholas Ellens, PhD[4], Clif Burdette[5], Keyvan Farahani[6], Ralph P Tufano, MD, MBA[1]; [1]Johns Hopkins University School of Medicine, Department of Otolaryngology Division of Head and Neck Surgery, [2]Philips Healthcare, Andover, MA, [3]Department of Pathology, College of Medicine, University of Illinois at Urbana-Champaign, Urbana, IL, [4]Johns Hopkins University School of Medicine, Department of Radiology and Radiological Science, [5]Acoustic MedSystems Inc., Savoy, IL, [6]National Cancer Institute, Bethesda, MD

B036: META-ANALYSIS OF DIAGNOSTIC ACCURACY IN SENTINEL LYMPH NODE BIOPSY FOR LOW-STAGE ORAL TONGUE SQUAMOUS CELL CARCINOMA Muyuan Liu, MD, PhD[1], Jonathan R George, MD, MPH[2], Xihong Yang, MD, PhD[1], Hanwei Peng, MD, PhD[1]; [1]Department of Head and Neck, Cancer Hospital, Shantou University, Shantou, China, [2]Department of Head and Neck Surgery, University of California, San Francisco

Poster Listing

B037: LARYNGECTOMY PATIENTS IN THE PRIMARY CARE SETTING: ARE THEY BEING CARED FOR APPROPRIATELY? William S Kim, MD, Erin K Haser, MD, Richard O Wein, MD, Miriam A O'Leary, MD; Tufts Medical Center

B038: FAILURE TO ACHIEVE GROSS TOTAL DISEASE RESECTION DURING INITIAL SURGERY OF MAJOR SALIVARY GLAND CARCINOMA AFFECTS DISEASE FREE SURVIVAL Samantha Tam, MD, Vlad C Sandulache, MD, PhD, Kareem A Metwalli, BS, Crosby D Rock, Salman Eraj, BA, Clifton D Fuller, MD, PhD, Randal S Weber, MD, Stephen Y Lai, MD, PhD; University of Texas MD Anderson Cancer Center

B039: COMPARISON OF HEAD AND NECK CANCER SURVIVAL: EUROPE VS. UNITED STATES Suat Kilic, BA, Shreya Patel, BS, Kristen Echanique, BS, Soly Baredes, MD, Jean A Eloy, MD, Richard Chan W Park, MD; Rutgers New Jersey Medical School

B040: THREE DIMENSIONALLY CULTURED HUMAN MESENCHYMAL STEM CELL (MSC) PATCH ACCELERATES THE ULCER HEALING VIA ENHANCED SECRETION OF CYTOKINES RELATED WITH ANGIOGENESIS, ANTI-INFLAMMATION AND PROTECTION AGAINST CELL DEATH. Seong Keun Kwon, MD, PhD; Seoul National University Hospital

B041: PREOPERATIVE ANEMIA DISPLAYS A DOSE-DEPENDENT EFFECT ON COMPLICATIONS IN MAJOR HEAD AND NECK ONCOLOGIC SURGERY Nicholas B Abt, MD, Ashley L Miller, MD, Sidharth V Puram, MD, PhD, Mark A Varvares, MD; Massachusetts Eye and Ear Infirmary, Harvard Medical School

B042: GAUGING MEDICAL STUDENT INTEREST IN AUGMENTED REALITY FOR LEARNING HEAD AND NECK ANATOMY Kevin Wong, BA[1], Brian A Xavier, BA[1], Gregory A Grillone, MD[2]; [1]Boston University School Of Medicine, [2]Boston Medical Center

B043: UPDATE ON ASPYRIAN TRIAL: STUDY OF RM-1929 AND PHOTOIMMUNOTHERAPY IN PATIENTS WITH RECURRENT HEAD AND NECK CANCER John P Gleysteen, MD[1], Joseph Curry, MD[1], Adam Luginbuhl, MD[1], Jennifer Johnson, MD, PhD[1], Ralph Zinner, MD[1], Merril Biel, MD, PhD[2], David Cognetti, MD[1]; [1]Thomas Jefferson University, [2]University of Minnesota

B044: ANTIBIOTIC PROPHYLAXIS FOR REVISION, CLEAN HEAD AND NECK SURGERY - A DOUBLE-BLIND, RANDOMIZED, PLACEBO-CONTROLLED TRIAL Yotam Shkedy, MD, Sagit Stern, MD, Yuval Nachalon, MD, Dana Levy, RN, Inga Mansharov, RN, Ella Rifen, MD, Thomas Shpitzer, MD; Rabin Medical Center

B045: SUBMENTAL LIPOSUCTION FOR THE MANAGEMENT OF LYMPHEDEMA FOLLOWING HEAD AND NECK CANCER TREATMENT: A RANDOMIZED CONTROLLED TRIAL. Uthman Alamoudi, MD, Benjamin Taylor, MD, Matthew Rigby, MD, MPH, FRCSC, Robert Hart, MD, FRCSC, Jonathan Trites, MD, FRCSC, S. Mark Taylor, MD, FRCSC; Dalhousie University

B046: ANTI-OX-40 (MEDI6469) PRIOR TO DEFINITIVE SURGICAL RESECTION IN PATIENTS WITH HEAD AND NECK SQUAMOUS CELL CARCINOMA R. Bryan Bell, MD, DDS, FACS[1], Rom S Leidner, MD[1], Zipei Feng, MD, PhD[2], Rebekka Duhen, PhD[1], Yoshi Koguchi, PhD[1], Carlo Bifulco, MD[1], Bernard A Fox, PhD[1], Brendan Curti, MD[1], Andrew D Weinberg, PhD[1]; [1]Earle A. Chiles Research Institute at Providence Cancer Center, [2]Oregon Health & Science University

B047: THE ROLE OF TLR3 SIGNALING IN CHEMORESISTANCE OF HEAD AND NECK SQUAMOUS CELL CARCINOMA Hui-Ching Chuang, MD, PhD; Kaoshiung Chang Gung Memorial Hospital

B048: LOSS OF PROTECTIVE CD169 MACROPHAGES IN LYMPH NODES WITH METASTATIC SQUAMOUS CELL CARCINOMA WITH PRESERVATION IN ADJACENT NEGATIVE DRAINING LYMPH NODES Michael C Topf, MD, Christopher M Shumrick, BS, Madalina Tuluc, MD, David M Cognetti, MD, Joseph M Curry, MD, Adam Luginbuhl, MD; Thomas Jefferson University Hospital

Poster Listing

B049: CETUXIMAB AND CISPLATIN EFFECTS ON OROSPHERE FORMATION AND GENE EXPRESSION IN HEAD AND NECK SQUAMOUS CELL CARCINOMA (HNSCC) CELLS: THE POTENTIAL FOR A PROGNOSTIC BIOMARKER Valeda Yong, BA[1], Lechuang Chen, MD, PhD[2], Ashlee Jeter, BS[2], Chad Zender, MD, FACS[3], Ge Jin, PhD[2], Aaron Weinberg, DMD, PhD[2]; [1]Case Western Reserve University School of Medicine, [2]Case Western Reserve School of Dental Medicine - Biological Sciences, [3]University Hospitals Cleveland Medical Center - ENT Institute

B050: LONG-TERM OUTCOMES OF PATIENTS WITH CUTANEOUS SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK Neha G Desai, BDS[1], Gary Clayman, MD[2], Jack Lee, PhD[1], Adel El-Naggar, MD[1], Victor Prieto, MD[1], Bonnie Glisson, MD[1], Dianna Roberts, PhD[1], Michael Migden, MD[1], Jeffrey Myers, MD, PhD[1], Randal Weber, MD[1], Neil D Gross, MD[1]; [1]The University Of Texas MD Anderson Cancer Center, [2]Clayman Thyroid Cancer Center

B051: PREDICTORS OF RECURRENCE AND METASTASIS IN ACINIC CELL CARCINOMA OF THE PAROTID GLAND S. Ahmed Ali, MD, Kevin J Kovatch, MD, Andrew J Rosko, Andrew C Birkeland, MD, Kelly M Malloy, MD, Carol R Bradford, MD, Mark E Prince, MD, Jonathan B McHugh, MD, Matthew E Spector, MD; University of Michigan Health System

B052: PROGNOSTIC FACTORS OF CUTANEOUS SQUAMOUS CELL CARCINOMA IN THE HEAD & NECK AND THE ROLE OF SENTINEL LYMPH NODE BIOPSY: A SYSTEMATIC REVIEW OF THE LITERATURE Joshua Lubov, Michael Hier, MD, Manish Khanna, MD, Khalil Sultanem, MD, Alex Mlynarek, MD; McGill University

B053: COMPARISON OF THE CLINICOPATHOLOGIC FEATURES OF ONCOCYTIC VARIANT PAPILLARY THYROID CARCINOMA WITH CLASSICAL AND FOLLICULAR SUBTYPES Carol Li, MD, Paul H McClelland, BA, Andrew Tassler, MD, William I Kuhel, MD, Theresa Scognamiglio, MD, David I Kutler, MD; New York Presbyterian - Weill Cornell Medical College

B054: SUPERIOR DETECTION OF METASTATIC CYSTIC LYMPHADENOPATHY IN PATIENTS WITH PAPILLARY THYROID CANCER BY UTILIZATION OF THYROGLOBULIN WASHOUT. Helmi Khadra, MD, Hossam Mohamed, MD, Zaid Al-Qurayshi, MD, MPH, Andrew Sholl, MD, Khuzema Mohsin, MD, Mary Killackey, MD, Emad Kandil, MD, MBA; Tulane University School of Medicine

B055: PRESCRIPTION AND USAGE PATTERN OF NARCOTIC IN POSTOPERATIVE THYROID SURGERY Catherine Lumley, MD[1], Joshua Thompson[2], Bruce Davidson, MD[1]; [1]Georgetown University Hospital, [2]Georgetown University School of Medicine

B056: ASSOCIATION OF CLINICAL RISK FACTORS AND PERIOPERATIVE VARIABLES ON OUTCOMES AFTER PARATHYROIDECTOMY Elizabeth E Cottrill, MD, Brian Saunders, MD, David Goldenberg, MD, Christopher Hollenbeak, PhD, Melissa Boltz, MD, MBA; Penn State Hershey Medical Center

B057: THE EFFECT OF NODULE SIZE IN PATIENTS WITH MINIMAL EXTRATHYROIDAL EXTENSION IN DIFFERENTIATED THYROID CANCER Samantha Tam, MD, Moran Amit, MD, PhD, Mongkol Boonsripitayanon, MD, Mark Zafereo, MD; University of Texas MD Anderson Cancer Center

B058: LINGUAL THYROID CARCINOMA A CASE REPORT AND REVIEW OF SURGICAL APPROACHES IN THE LITERATURE. William A Stokes, MD, Rusha Patel, MD; West Virginia University

B059: DO ANTICOAGULATION MEDICATIONS INCREASE THE RISK OF BLEEDING IN ULTRASOUND GUIDED FINE NEEDLE ASPIRATION OF THYROID LESIONS? Helmi Khadra, MD, Roostam Kholmatov, MD, PhD, Dominique Monlezun, PhD, MPH, Mary Killackey, MD, Emad Kandil, MD, MBA; Tulane University School of Medicine

B060: IMPACT OF AGE ON IN-HOSPITAL COMPLICATIONS ASSOCIATED WITH PARATHYROID SURGERY Kristen A Echanique, BS, Aparna Govindan, BA, Michael J Sylvester, AB, Suat Kilic, BA, Soly Baredes, MD, FACS, Jean Anderson Eloy, MD, FACS, Evelyne Kalyoussef, MD, FACS; Rutgers New Jersey Medical School

Poster Listing

B061: CAN BRAFV600E STATUS PREDICT EXTRATHYROIDAL EXTENSION IN PAPILLARY THYROID CANCER? Helmi Khadra, MD, Khuzema Mohsin, MD, Fadi Murad, MD, Dominique Monlezun, PhD, MPH, Christopher DuCoin, MD, MPH, Mary Killackey, MD, Emad Kandil, MD, MBA; Tulane University School of Medicine

B062: A NOMOGRAM FOR PREDICTING TRANSIENT POST-OPERATIVE VOCAL FOLD PARALYSIS AFTER TOTAL THYROIDECTOMY FOR PAPILLARY CARCINOMA. Genival B de Carvalho, MD, Andre Y Carvalho, MD, Renan B Lira, PhD, Marcel A Tapia, MD, Isabela M Martins, MD, Lina R Giraldo, MD, Joel A Novoa, MD, Hug F Kohler, PhD, Luiz P Kowalski, PhD; A C Camargo Cancer Center

B063: SIGNIFICANCE OF INTRAOPERATIVE PTH IN SURGICAL MANAGEMENT OF SECONDARY AND TERTIARY HYPERPARATHYROIDISM Khuzema Mohsin, MD, Daniah Bu Ali, MD, Roostam M Kholmatov, MD, PhD, Fadi Murad, MD, Tamer Ahmed, MD, MPHTM, Emad Kandil, MD, MBA, FACS, FACE; Tulane University School of Medicine

B064: TRAF2 ASSOCIATED WITH FAK IS ESSENTIAL FOR HEAD AND NECK METASTASIS Sabrina Daniela Silva Wurzba[1], Bin Xu[1], Fabio Marchi[2], Krikor Bijian[1], Alex Mlynarek[1], Michael Hier[1], Luiz Paulo Kowalski[2], Moulay A. Alaoui-Jamali[1]; [1]McGill, [2]AC Camargo

B065: THE SCREENING AND IDENTIFICATION OF MOLECULES RELATED TO NASOPHARYNGEAL CARCINOMA RADIORESISTANCE Yuanzheng Qiu, Ph, D, Yong Liu, PhD, Guo Li, PhD, Shuling Ren, Chao Liu, Donghai Huang, PhD; Department of Otolaryngology and head-neck surgery, Xiangya Hospital, Central South University

B066: TRAF3/CYLD MUTATIONS DEFINE A DISTINCT SUBSET OF HPV-ASSOCIATED HEAD AND NECK SQUAMOUS CELL CARCINOMA Andrew B Sewell, MD, Michael Hajek, MSc, Susan Kaech, PhD, Barbara Burtness, MD, Wendell G Yarbrough, MD, MMHC, Natalia Issaeva, PhD; Yale University

B067: IMMUNOHISTOCHEMICAL EVALUATION OF NOTCH PATHWAY ACTIVATION IN HEAD AND NECK SQUAMOUS CELL CARCINOMA Eleni M Rettig, MD[1], Justin A Bishop, MD[1], Nishant Agrawal, MD[2], Rajni Sharma, PhD[1], Ryan J Li, MD[3], Theresa Guo, MD[1], Wayne Koch, MD[1], Joseph A Califano, MD[4], Christine H Chung, MD[5], Carole Fakhry, MD, MPH[1]; [1]Johns Hopkins, [2]University of Chicago, [3]Oregon Health & Science University, [4]University of California San Diego, [5]Moffitt Cancer Center & Research Institution

B068: DETECTION OF METHYLATED TUMOR DNA IN PLASMA AND SALIVA AFTER TREATMENT PREDICTS RECURRENCE IN HPV-NEGATIVE HEAD AND NECK SQUAMOUS CELL CARCINOMA Sunny Haft, MD[1], Theresa Guo, MD[2], Minya Pu[1], John Pang, MD[1], Jing Zhang[1], Zubair Khan, MBBS[2], Darya Gaykalova, PhD[2], Joseph Califano, MD[1]; [1]University of California San Diego, [2]Johns Hopkins

B069: HIGH ACCURACY TO DISTINGUISH MALIGNANT FROM NON-MALIGNANT THYROID TISSUES USING DNA METHYLATION PROFILING Mateus Barros Filho, PhD[1], Mariana dos Reis, PhD[2], Caroline Beltrami, MSc[1], Fabio Marchi, PhD[1], Hellen Kuasne, PhD[1], Antonio C Pinto, MD, PhD[1], Srikant Ambatipudi, PhD[3], Zdenko Herceg, PhD[3], Luiz P Kowalski, MD, PhD[1], Silvia R Rogatto, PhD[2]; [1]AC CAmargo Cancer Center, [2]Vejle Hospital and University of Southern Denmark, [3]International Agency for Research on Cancer

B070: TARGETING MECHANISMS OF RESISTANCE TO APOPTOSIS IN HEAD AND NECK SQUAMOUS CELL CARCINOMA Cory Fulcher[1], Carlos Thomas[1], Richard V Smith, MD[2], Thomas J Belbin, PhD[1], Thomas Harris, PhD[1], Geoffrey Childs, PhD[1], Missak Haigentz, MD[2], Madhur Garg, MD[2], Rafi Kabaritti, MD[2], Bradley A Schiff, MD[2], Michael B Prystowsky, MD, PhD[1], Nicolas F Schlecht, PhD[1], Gregory Rosenblatt, PhD[1], Chandan Guha, MB, BS, PhD[1], Evripidis Gavathiotis[1], Thomas J Ow, MD, MS[2]; [1]Albert Einstein College of Medicine, [2]Montefiore Medical Center

B072: DIFFERENTIAL GENE EXPRESSION ANALYSIS OF INVASIVE AND NON-INVASIVE FOLLICULAR VARIANT OF PAPILLARY THYROID CARCINOMA Christopher Pool, MD, David Goldenberg, MD, FACS, Erik Washburn, MD, Joshua Warrick; Penn State Hershey Medical Center

Poster Listing

B073: DEVELOPMENT AND CHARACTERIZATION OF AN IN VITRO MODEL FOR RADIATION INDUCED FIBROSIS Dhruv Kumar, PhD[1], Jacob New[1], Sreeya Yalamanchali, MD[1], Sean Parsel, MD[1], Natalie New[1], Sumedha Gunewardena[2], Ossama Tawfik, MD[3], Chris Lominska, MD[4], Bruce Kimler, PhD[4], Kiran Kakarala, MD[1], Terrence Tsue, MD[1], Yelizaveta Shnayder, MD[1], Kevin Sykes, PhD[1], Subhash Padhye, PhD[5], Sufi M Thomas, PhD[1]; [1]University of Kansas Department of Otolaryngology, [2]University of Kansas Department of Molecular and Integrative Physiology, [3]University of Kansas Department of Pathology and Laboratory Medicine, [4]University of Kansas Department of Radiation Oncology, [5]University of Pune Department of Chemistry

B074: MUTATION PROFILING OF OLFACTORY NEUROBLASTOMA, ESTABLISHMENT OF NOVEL OLFACTORY NEUROBLASTOMA CELL LINE MODELS AND RESULTS FROM DRUG SCREENING Matt Lechner, MD, PhD[1], Graham Wells[2], Chris Steele, PhD[3], Nischalan Pillay[3], Tim Fenton, PhD[3], Chris Kranjec, PhD[4], Luke Williams, MBBS[3], Debbie Ho[3], Nur Ayne Zaharoff[3], Martin Forster, PhD[1], Amrita Jay, MBBS[1], Wendell G Yarbrough, MD[5], Volker Schartinger, MD[6], Nils Engel[7], Ulrich Schueller, MD[7], David Capper, MD[8], Udo Oppermann, PhD[2], David Howard, MD[1], Valerie J Lund, MD, CBE[1]; [1]University College London Hospitals, [2]University of Oxford, [3]University College London, [4]University of Cambridge, [5]Yale School of Medicine, [6]University Hospital of Innsbruck, [7]University Hospital Hamburg-Eppendorf, [8]Ruprecht-Karls University Heidelberg

B075: NDRG EXPRESSION PREDICTS METASTASIS AND IS A POTENTIAL THERAPEUTIC TARGET IN ORAL CANCER Gregoire B Morand, MD, MSC[1], Marianne Maschietto, PhD[1], Carolina Carneiro, DDS, MSc[1], Gerry F Huber, MD, MSc[2], Michael P Hier, MDCM, FRCSC[1], Alex M Mlynarek, MD, MSc, FRCSC[1], Luis P Kowalski, PhD[3], Sabrina D da Silva, PhD[1]; [1]McGill University, [2]University Hospital Zurich, [3]AC Camargo, Sao Paulo

B076: ANALYSIS OF MUTATIONS IN DRUGGABLE TARGET GENES IN SALIVARY MUCOEPIDERMOID CARCINOMAS REVEALED BY WHOLE EXOME SEQUENCING Ana Flavia Costa, DDS, PhD, Bruna Barros, PhD, Maria Amorim, PhD, Renan Valieris, BCompSc, Israel Silva, PhD, Melissa Pizzi, MSc, Diana Nunes, PhD, Clovis Pinto, MD, PhD, Luiz Paulo Kowalski, MDPhD, Emmanuel Dias-Neto, PhD; AC Camargo Cancer center

B077: CANCER STEM CELL DISTRIBUTION AT THE SURGICAL MARGIN AND TUMOR LEADING EDGE Farshad N Chowdhury, MD[1], Stephen B Keysar, PhD[2], Magdalena J Glogowska, MS[2], Brian C Jackson, PhD[2], John I Song, MD[1], Antonio Jimeno, MD, PhD[3]; [1]Department of Otolaryngology, University of Colorado Anschutz Medical Campus, [2]Division of Medical Oncology, Department of Medicine, University of Colorado Anschutz Medical Campus, [3]Division of Medical Oncology, Department of Medicine and Department of Otolaryngology, University of Colorado Anschutz Medical Campus

B078: GENOMIC SIGNATURE OF EXTRA NODAL EXTENSION (ENE) IN ORAL SQUAMOUS CELL CARCINOMA (OSCC) Vlad Sandulache, MD, PhD[1], Curtis Pickering, PhD[2], Pranav Kataria[2], Sanchit Trivedi[2], Diana Bell[2], Samar Jasser[2], Mei Zhao[2], Jeffrey Myers, MD, PhD[2]; [1]Baylor College of Medicine, [2]UT MD Anderson Cancer Center

B079: MULTIPLE-BIOPSY TUMOUR HETEROGENEITY IN SQUAMOUS CARCINOMATA OF THE OROPHARYNX Andrew S Lau, MRCS, Xuan Liu, PhD, Pia Koldkjaer, PhD, Sam Haldenby, PhD, Christiane Hertz-Fowler, PhD, Nikolina Vlatkovic, PhD, Mark T Boyd, PhD, Professor, Terry M Jones, MD, Professor; University of Liverpool

B080: CHARACTERISTICS ASSOCIATED WITH VOICE HANDICAP AFTER SUPRACRICOID PARTIAL LARYNGECTOMY Jennifer Wherley, MS, Rachel K Bolognone, MS, Andrew D Palmer, PhD, Donna J Graville, PhD, Joshua Schindler, MD; Oregon Health & Science University

Poster Listing

B081: THE IMPACT OF ADJUVANT TREATMENT AND RADIAL FOREARM FREE TISSUE TRANSFER ON TRACHEOESOPHAGEAL VOICE PROSTHESIS (TEP) OUTCOMES AFTER TOTAL LARYNGECTOMY Donna J Graville, PhD[1], Andrew D Palmer, PhD[1], Peter E Andersen, MD[1], Mark K Wax, MD[1], James I Cohen, MD, PhD[2]; [1]Oregon Health & Science University, [2]Portland VA Medical Center

B082: MANAGEMENT DECISIONS OF ADVANCED LARYNGEAL CANCER WITH AIRWAY OBSTRUCTION Al Haitham Al Shetawi, MD, DMD, Nelson Goldman, MD, Phillip Pirgousis, MD, DMD; University of Florida College of Medicine, Jacksonville

B083: TIME OF FOLLOW-UP AND OTHER PROGNOSTIC INFORMATION IN 784 PATIENTS WITH LARYNX SQUAMOUS CELL CARCINOMA Genival B de Carvalho, MD[1], Marcelo E Ferraz, PhD[1], Samuel P Lima, MD[1], Luigi De Benedetto, MD[2], Andre L de Carvalho, PhD[3], Ansarin Mohssen[2], Fausto Chiesa[2], Hugo F Kohler, PhD[1], Luiz P Kowalski, PhD[1]; [1]A C Camargo Cancer Center, [2]Instituto Europeo di Oncologia, [3]Hospital de Cancer de Barretos

B084: CLINICOPATHOLOGIC FEATURES AND PROGNOSTIC INDICATORS OF LARYNGEAL SMALL CELL CARCINOMA: A RETROSPECTIVE COHORT STUDY Satvir S Saggi, Edward C Kuan, MD, MBA, Peter Pellionisz, BS, Maie St. John, MD, PhD; UCLA

B085: CD8 POSITIVE TUMOR INFILTRATING LYMPHOCYTES PREDICT SURVIVAL IN RECURRENT LARYNGEAL SQUAMOUS CELL CARCINOMA Rebecca C Hoesli, MD[1], Andrew Birkeland, MD[1], Kelsey L Chow, BA[2], Andrew Rosko, MD[1], J C Brenner, PhD[1], Jonathan McHugh, MD[1], Matthew E Spector, MD[1]; [1]University of Michigan, [2]Rocky Vista University

B086: PROGNOSTIC SIGNIFICANCE OF TUMOR AND STROMAL FACTORS ON OCCURENCE OF DELAYED LYMPH NODE METASTASES (DLNM) AND SURVIVAL IN EARLY-STAGE ORAL SQUAMOUS CELL CARCINOMA (OSCC) Ivica Luksic, Assist Prof, PhD, MD[1], Petar Suton, PhD, MD[2]; [1]University of Zagreb School of Medicine, Department of Maxillofacial Surgery, University Hospital Dubrava, [2]Division of Radiation Oncology, Department of Radiotherapy and Medical Oncology, University Hospital for Tumors, University Hospital Centre Sisters of Mercy

B087: ORAL CAVITY VERRUCOUS CARCINOMA: A POPULATION-BASED STUDY OF 1408 CASES Alexander N Goel, BA, Alexander M Garrett, BS, Adam P Braun, BS, Jennifer L Long, MD, PhD; David Geffen School of Medicine at UCLA

B089: FLUORESCENT DETECTION OF SQUAMOUS CELL CARCINOMA USING 5-AMINOLEVULINIC ACID IN VITRO Neil S Nayak, MD, Ainara Gastaminsa, Olena Bracho, BS, Xiaowen Yu, BS, Esperanza Bas, PhD, Giovanna Thomas, MD, Zoukaa Sargi, MD, Christine Dinh, MD; University of Miami

B091: ADHERENCE TO TREATMENT GUIDELINES FOR ORAL CAVITY SQUAMOUS CELL CARCINOMA: PRIMARY SURGICAL RESECTION VS. PRIMARY RADIATION THERAPY Rance J Fujiwara, BS, Benjamin L Judson, MD, Saral Mehra, MD, MBA; Yale University School of Medicine

B092: INTRA-OPERATIVE ULTRASOUND IN ORAL TONGUE CANCER RESECTION: FEASIBILITY STUDY AND EARLY OUTCOMES Osama Tarabichi, Vivek V Kanumuri, Amy F Juliano, Mary E Cunnane, William C Faquin, Mark A Varvares; Massachusetts eye and ear infirmary

B093: SENTINEL LYMPH NODE BIOPSY IN CLINICALLY N0, T1/T2, ORAL SQUAMOUS CELL CARCINOMA Arshad Kaleem, MD, DMD, Eric Dierks, MD, DDS, FACS, Allen Cheng, MD, DDS, Ashish Patel, MD, DDS, Bryan Bell, MD, DDS, FACS; 1Providence Oral, Head and Neck Cancer Program and Clinic, Providence Cancer Center 4805 NE Glisan, Suite 2N35, Portland, OR 97213 2Oral, Head and Neck Cancer Program, Legacy Good Samaritan Medical Center 3The Head and Neck Institute, Portland, OR 1849 NW Kearney, Suite 300 Portland, OR 97209

Poster Listing

B094: IMPACT OF PERINEURAL INVASION IN EARLY STAGE ORAL CAVITY SQUAMOUS CELL CARCINOMA Matthew Shew, Thomas Muelleman, Kevin Sykes, Kiran Kakarala; University of Kansas Medical Center

B095: HEAD AND NECK CANCER-INDUCED STROMAL FIBROBLAST AUTOPHAGY REGULATES TUMOR METABOLISM AND GROWTH Jacob New, Sufi M Thomas, Levi Arnold, Megha Ananth, Sameer Alvi, Wen-Xing Ding; University of Kansas Medical Center

B096: PET/CT FOR POST-TREATMENT SURVEILLANCE IN HPV-POSITIVE OROPHARYNGEAL CANCER: DIAGNOSTIC ACCURACY, CLINICAL IMPACT, RECURRENCE, AND SURVIVAL David W Corpman, BS[1], Farzad Masroor, MD[2], Diane Carpenter[2], Sundeep Nayak, MD[3], Deepak Gurushanthaiah, MD[2], Kevin H Wang, MD[2]; [1]University of California, San Francisco School of Medicine, [2]Kaiser Permanente Oakland Medical Center Department of Head and Neck Surgery, [3]Kaiser Permanente San Leandro Medical Center Department of Radiology

B097: EVALUATION OF NEWLY PROPOSED HPV-POSITIVE OROPHARYNGEAL CANCER STAGING SYSTEMS Eugenie Du, MD[1], Eunice Yim, BA[2], Doug Farquhar, MD, MPH[1], Angela Mazul, PHD, MPH[3], Lindsey Matthews, MD, MPH[4], Bhishamjit S Chera, MD[5], Neil David Hayes, MD, MPH[6], Samip N Patel, MD[1], Trevor G Hackman, MD[1], Adam M Zanation, MD[1], Mark C Weissler, MD[1], Benjamin Huang, MD[7], Jose P Zevallos, MD, MPH[1]; [1]1Department of Otolaryngology/ Head and Neck Surgery, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC, [2]University of North Carolina at Chapel Hill School of Medicine, [3]3Department of Epidemiology, Gillings School of Global Public Health, Universityo f North Carolina at Chapel Hill, Chapel Hill, NC, [4]4Department of Pathology and Laboratory Medicine, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC, [5]Department of Radiation Oncology, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC, [6]6Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC, [7]8Department of Radiology, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC

B098: TREATMENT DEINTENSIFICATION IN HUMAN PAPILLOMAVIRUS POSITIVE OROPHARYNX CANCER: ASSESSING SAFETY AND GUIDING FUTURE DIRECTIONS. Shayan Cheraghlou, BA, Phoebe Kuo, BA, Saral Mehra, MD, MBA, Wendell G Yarbrough, Benjamin L Judson, MD; Yale Medical School

B099: THE CHARACTERISTICS OF P16 POSITIVE/ P53 NEGATIVE OROPHARYNGEAL SQUAMOUS CELL CARCINOMAS -EXCELLENT SURVIVAL, HIGHER RESPONSE RATE TO NEOADJUVANT CHEMOTHERAPY AND LOWER MULTIPLE MALIGNANCY INCIDENCE Shogo Shinohara, MD, PhD[1], Shinichi Takebayashi[1], Masahiro Kikuchi[2], Hiroyuki Harada[1], Yukihiro Imai[1], Keiichiro Uehara[1], Yu Usami[3]; [1]Kobe City Medical Center General Hospital, [2]University of Pittsburgh Cancer Institute Hillman Cancer Center, [3]Osaka University

B100: WHAT YOUR PARENTS DIDN'T TELL YOU: A HISTORICAL ANALYSIS OF RISK FACTORS FOR OROPHARYNGEAL CANCER Natasha Cohen, Dr, David Choi, MD, Michael K Gupta, Dr; McMaster University

B101: METASTECTOMY FOR DELAYED DISTANT METASTASIS IN HUMAN PAPILLOMAVIRUS-ASSOCIATED OROPHARYNGEAL CARCINOMA William G Albergotti, MD, Ronak Dixit, MD, Robert L Ferris, MD, PhD, Jonas T Johnson, MD, PhD, Umamaheswar Duvvuri, MD, PhD, Seungwon Kim, MD, PhD; University of Pittsburgh Medical Center

B102: PATTERN OF DISTANT METASTASIS IN OROPHARYNGEAL SQUAMOUS CELL CARCINOMA IN A VETERAN POPULATION AND REPORT OF A RARE CASE Bin Li, MD, Emiro Caicedo-Granados, MD, Markus Gapany, MD; University of Minnesota

B103: INCIDENCE AND PREDICTORS OF LONG-TERM COMPLICATIONS FOLLOWING DEFINITIVE RADIATION THERAPY IN THE TREATMENT OF OROPHARYNGEAL SQUAMOUS CELL CARCINOMA Ryan Augustin[1], Augustin Katrina[1], Akshay Patel, MA, DO[2], Chad Zender, MD, FACS[2]; [1]Case Western Reserve University Medical School, [2]University Hospitals Cleveland Medical Center

Poster Listing

B104: NON-CODING RNA BIOMARKERS IN OROPHARYNGEAL SQUAMOUS CELL CARCINOMA: A PROSPECTIVE NON-RANDOMIZED STUDY Masanari G Kato, BS[1], Evren Erkul, MD[1], Reniqua P House, PhD[2], Marion B Gillespie, MD[1], Viswanathan Palanisamy, PhD[2], Terry A Day, MD[1]; [1]Department of Otolaryngology-Head and Neck Surgery, Medical University of South Carolina, [2]Department of Oral Health Sciences, Medical University of South Carolina

B105: KNOWLEDGE OF HPV AND HEAD AND NECK CANCER IN A HIGH-RISK POPULATION WITH HIV: IMPLEMENTATION OF A TARGETED EDUCATIONAL PROGRAM Noel Ayoub, John Sunwoo, MD, Heather Starmer, MA, CCCSLP; Stanford University

B106: IMPROVING THE SENSITIVITY OF OROPHARYNGEAL HPV DETECTION VIA BRUSH SAMPLING OF THE PALATINE-LINGUAL TONSIL INTERFACE Jeremy Foon, MD, MPH, Palak Patel, MS, IV; University of Texas Medical Branch

B107: P16 STATUS PREDICTS SURVIVAL IN RECURRENT AND PERSISTENT OROPHARYNGEAL CANCER Joseph F White, MD[1], Mark Query, MD[2], Hosseinali Jafari, MD[1], Robbins T Kevin, MD[1], Arun Sharma, MD, MPH[1]; [1]Southern Illinois School Of Medicine, [2]Georgetown Medstar Health

B108: VOICE AND SWALLOWING OUTCOMES FOLLOWING RADIOTHERAPY FOR PRIMARY NASOPHARYNGEAL CARCINOMA IN A RANDOMIZED CONTROLLED TRIAL OF NEUROMUSCULAR ELECTRICAL STIMULATION Jason Chan, Rita W Wong, Kathy Y Lee, Louisa Ng, Eddy Wong, Alexander Vlantis, Thomas Law, Peter Ku, C A van Hasselt, Michael C Tong; The Chinese University of Hong Kong

B109: QUALITY OF LIFE OUTCOMES FOLLOWING SIALENDOSCOPY FOR CHRONIC SIALADENITIS IN HONG KONG Zion To, Carol Yim, Gabriel Li, Gabriel Wai, S K Ng, Eddy Wong, Alexander Vlantis, Jason Chan; The Chinese University of Hong Kong

B110: DETERMINING A PRECISE CUT POINT FOR THE ASSOCIATION BETWEEN ANNUAL SURGEON THYROIDECTOMY VOLUME AND OUTCOMES Charles M Meltzer[1], Michaela Hull[2], John L Adams[2]; [1]The Permanente Medical Group, [2]Center for Effectiveness and Safety Research, Kaiser Permanente

B111: SENTINEL LYMPH NODE BIOPSY IN PEDIATRIC AND YOUNG ADULT HEAD AND NECK ATYPICAL MELANOCYTIC NEOPLASMS David Pfau[1], Kord Honda, MD[2], Rod Rezaee, MD[2], Chad Zender, MD[2]; [1]Case Western Reserve University School of Medicine, [2]University Hospitals Cleveland Medical Center

B112: CLINICAL PROFILE, TREATMENT PATTERNS AND OUTCOMES OF STAGE IV SCCHN PATIENTS RECEIVING 2ND LINE ACTIVE DRUG TREATMENT Katherine Byrne[1], Pamela Hallworth[1], Adam Roughley[1], Giovanni Zanotti[2], Shrividya Iyer[2]; [1]Adelphi Real World, [2]Pfizer Inc

B113: THE EFFECT OF SMOKING ON POSTOPERATIVE COMPLICATIONS AND LENGTH OF STAY AFTER HEAD AND NECK FREE TISSUE RECONSTRUCTION Emily M Barrow, MD[1], Jason A Brant, MD[2], Mark W El-Deiry, MD[1], Steven B Cannady, MD[2], Jason G Newman, MD[2], Amy Y Chen, MD[1], Andres M Bur, MD[1]; [1]Emory University, [2]University of Pennsylvania

B114: THE ROLE OF FDG PET-CTS IN THE DETECTION OF OROPHARYNGEAL CANCER RECURRENCE Shanmugappiriya Sivarajah, MD, Daniel O'Connell, MD, FRCSC; University of Alberta

B115: FRAILTY CHARACTERISTICS CAN PREDICT OUTCOME IN PATIENTS UNDERGOING MICROVASCULAR HEAD AND NECK RECONSTRUCTION Yue Ma, MD[1], Vir Patel, BS[2], Chris Hernandez, BS[2], Samuel DeMaria, MD[3], Stacie Deiner, MD[3], John Spivack, PhD[4], Marita Teng, MD[1], Eric Genden, MD[1], Brett A Miles, DDS, MD[1]; [1]Department of Otolaryngology Head and Neck Surgery, Icahn School of Medicine at Mount Sinai, New York, NY 10029, USA, [2]Icahn School of Medicine at Mount Sinai, New York, NY 10029, USA, [3]Department of Anesthesia, Icahn School of Medicine at Mount Sinai, New York, NY 10029, USA, [4]Department of Population Health Science and Policy, Icahn School of Medicine at Mount Sinai, New York, NY 10029, USA

Poster Listing

B116: AFTER WE'RE GONE: ESTABLISHING FOLLOW-UP AND MEASURING OUTCOMES FOR PATIENTS TREATED DURING TWO-WEEK HEAD AND NECK SURGICAL/ EDUCATIONAL MISSION TRIPS TO KENYA Charissa N Kahue, MD[1], Michael K Ghiam, BA[1], Shanik J Fernando, MD[1], Joyce Aswani, MBChB[2], Mary Omutsani, MD[3], Sunshine M Dwojak, MD, MPH[4], Sarah L Rohde, MD[1], James L Netterville, MD[1]; [1]Vanderbilt University Medical Center, Department of Otolaryngology, Nashville, TN, USA, [2]University of Nairobi, Department of Surgery, Nairobi, Kenya, [3]Kenyatta National Hospital, Department of Otolaryngology, Nairobi, Kenya, [4]Northwest Kaiser Permanente, Portland, OR, USA

B117: POOR ORAL HEALTH AFFECTS SURVIVAL IN HEAD AND NECK CANCER Douglas R Farquhar, MD, MPH, Kimon Divaris, DDS, PhD, Angela L Mazul, PhD, MPH, Jose P Zevallos, Andrew F Olshan, PhD, MS; University of North Carolina, Chapel Hill

B118: CLINICAL OUTCOMES AFTER LOCAL FIELD CONFORMAL RADIATION OF PATIENTS WITH RECURRENT RETROPHARYNGEAL NODAL METASTASIS Courtney Pollard, III, MD, PhD, Theresa Nguyen, BS, Adam S Garden, MD, Steven J Frank, MD, Gary B Gunn, MD, PhD, Clifton D Fuller, MD, PhD, Beth M Beadle, MD, William H Morrison, MD, He Wang, PhD, Sam Tung, PhD, Conjun Wang, PhD, Erich M Sturgis, MD, Randal S Weber, MD, Mark E Zafereo, MD, David I Rosenthal, MD, Jack Phan, MD, PhD; M.D. Anderson Cancer Center

B119: REGIONAL RECURRENCES AND HYAMS GRADE IN ESTHESIONEUROBLASTOMA Hedyeh Ziai[1], Ilan Weinreb[2], Christopher Yao[3], Ilan J Witterick[4], Allan Vescan[4], Eric Monteiro[4], David Goldstein[2], Jolie Ringash[2], Andrew Bayley[2], Gelareh Zadeh[2], Fred Gentili[2], John R de Almeida[2]; [1]University of Ottawa, [2]Princess Margaret Cancer Centre, [3]University of Toronto, [4]Mount Sinai Hospital

B120: EPIDEMIOLOGY OF SQUAMOUS CELL CARCINOMA OF THE HARD PALATE IN THE UNITED STATES: A POPULATION-BASED COHORT ANALYSIS OF 1,489 CASES Jose E Alonso, BS[1], Albert Y Han, PhD[1], Edward C Kuan, MD, MBA[1], Madeline Strohl, MD[2], Jon Mallen-St. Clair, MD[2], Maie A St. John, MD, PhD[1], William R Ryan, MD[2], Chase M Heaton, MD[2]; [1]UCLA, [2]UCSF

B121: ASSESSING THE ACCURACY OF THE ACS NSQIP RISK CALCULATOR IN PREDICTING OUTCOMES FOR PATIENTS UNDERGOING HEAD AND NECK FREE FLAP RECONSTRUCTION Kate Clancy, BA[1], Janki Shah, MD[2], Peter J Ciolek, MD[2], Michael Fritz, MD[2], Eric Lamarre, MD[2]; [1]Case Western Reserve School of Medicine, [2]Cleveland Clinic Foundation-Head and Neck Institute

B122: THE IMPORTANCE OF EARLY DYSPHAGIA EVALUATION AND MANAGEMENT AFTER TRANS-ORAL ROBOTIC SURGERY (TORS) Meryl Kaufman, MEd, CCCSLP[1], Elizabeth Seelinger, MS, CCCSLP[1], Lauren Ottenstein, MS, CCCSLP[1], Hannah Duke[2], Jonathan J Beitler, MD[1], Nabil F Saba, MD[1], Ashley Aiken[1], J. Trad Wadsworth[3], Amy Y Chen, MD[1], Mark W El-Deiry, MD[1], Zhang Chao, PhD[1], Mihir R Patel, MD[1]; [1]Emory University, [2]Michigan State University, [3]Moffit Cancer Center

B123: THE IMPACT OF CHEMORADIATION ON SURVIVAL FOR PATIENTS WITH T1-2N1 HEAD AND NECK CANCER Zachary S Zumsteg, MD[1], Sungjin Kim, MS[1], John David, MD[1], Emi Yoshida, MD[1], Mourad Tighiouart, PhD[1], Stephen L Shiao, MD, PhD[1], Kevin Scher, MD[1], Alain Mita, MD[1], Eric J Sherman, MD[2], Nancy Y Lee, MD[2], Allen S Ho, MD[1]; [1]Cedars-Sinai Medical Center, [2]Memorial Sloan Kettering Cancer Center

B124: SALIVARY GLAND NEUROENDOCRINE CARCINOMA: A POPULATION-BASED ANALYSIS OF INCIDENCE AND SURVIVAL Alexander N Goel, BA, Adam P Braun, BS, Alexander M Garrett, BS, Jennifer L Long, MD, PhD; David Geffen School of Medicine at UCLA

B125: STONEBREAKER SALIVARY PNEUMATIC LITHOTRIPSY: A CLINICAL STUDY Jack Kolenda, MD[1], Rohan R Walvekar, Associate Professor[2]; [1]University of Toronto, [2]LSU Health Sciences Center

Poster Listing

B126: IMPACT OF DISCHARGE DESTINATION ON PERIOPERATIVE OUTCOMES FOLLOWING TOTAL LARYNGECTOMY Aru Panwar, MD, FACS[1], Robert Lindau, MD[2], Oleg Militsakh, MD[2], Andrew Coughlin, MD[2], Harlan Sayles, MS[3], Daniel Lydiatt, MD, DDS[2], William Lydiatt, MD[2], Russell Smith, MD[2]; [1]Division of Head and Neck Surgery, University of Nebraska Medical Center & Nebraska Methodist Hospital, Omaha, Nebraska, [2]Head and Neck Surgery, Nebraska Methodist Hospital, Omaha, Nebraska, [3]College of Public Health, University of Nebraska Medical Center, Omaha, Nebraska

B127: PREDICTORS OF SHORT-TERM MORBIDITY AND MORTALITY IN OPEN ANTERIOR SKULL BASE SURGERY Edward C Kuan, MD, Marilene B Wang, MD, Maie A St. John, MD, PhD; UCLA

B128: THE IMPACT OF INSTITUTIONAL CLINICAL TRIAL RECRUITMENT VERSUS HOSPITAL VOLUME ON SURVIVAL OUTCOMES OF PATIENTS WITH HEAD AND NECK CANCER: AN ANALYSIS OF THE PET-NECK TRIAL OUTCOMES, UKCRN PORTFOLIO, AND HOSPITAL EPISODE STATISTICS (HES) IN ENGLAND Daniel J Lin, BSc, MBChB[1], Christopher C McConkey, PhD[2], Paul Nankivell, BA, BMBCh, PhD, FRCS[3], Hisham Mehanna, PhD, BMedSc, MBChB, FRCS[3]; [1]Newcastle University, [2]University of Warwick, [3]University of Birmingham

B129: IN SEARCH OF A RELIABLE PREDICTOR OF COMPLICATIONS FOLLOWING LARYNGECTOMY: AN EVALUATION OF THE ACCURACY OF THE AMERICAN COLLEGE OF SURGEONS NSQIP SURGICAL RISK CALCULATOR James M Hamilton, MD, Christopher Shumrick, BS, Adeeba Ghias, Linda Magana, PhD, Michael Topf, MD, Haley Geosits, BS, Joseph M Curry, MD, David M Cognetti, MD, Adam J Luginbuhl, MD; Thomas Jefferson University Hospital - Dept. of Otolaryngology-Head and Neck Surgery

B130: RADIATION-INDUCED SOFT TISSUE SARCOMA OF THE NECK: REPORT OF THREE CASES AND REVIEW OF THE LITERATURE Lawrence Williams[1], Wojciech K Mydlarz[2], Brandi R Page[3], Harry Quon[3], Jeremy D Richmon[4], Nicole C Schmitt[2]; [1]Department of Otolaryngology Head and Neck Surgery, Walter Reed National Military Medical Center, Bethesda, Maryland, [2]Department of Otolaryngology Head and Neck Surgery, Johns Hopkins University, Baltimore, Maryland, [3]Department of Radiation Oncology and Molecular Sciences, Johns Hopkins University, Baltimore, Maryland, [4]Department of Otolaryngology- Head and Neck Surgery, Massachusetts Eye and Ear Infirmary and Harvard Medical School, Boston, Massachusetts

B131: RETROSPECTIVE REVIEW OF POST-OPERATIVE PAIN IN PRIMARY VERSUS SALVAGE TOTAL LARYNGECTOMY PATIENTS Daniel D Sharbel, MD[1], Thejas Hiremath, BS[2], Heather Bentley, NP[1], Clementino A Solares, MD[1], Michael Groves, MD[1], James K Byrd, MD[1]; [1]Augusta University Department of Otolaryngology-Head and Neck Surgery, [2]Medical College of Georgia at Augusta University

B132: FACTORS INFLUENCING TREATMENT SELECTION, MARGIN STATUS, AND SURVIVAL FOR ESTHESIONEUROBLASTOMA Rohan R Joshi, MD, Benjamin R Roman, MD, MSHP, Jocelyn C Migliacci, BS, Sean McBride, MD, MPH, Jennifer R Cracchiolo, MD, Ian Ganley, MD, PHD, Vivian Tabar, MD, Luc G Morris, MD, MSc, FACS, Marc A Cohen, MD, MPH; Memorial-Sloan Kettering Cancer Center

B133: PATIENT CHARACTERISTICS AS PREDICTORS OF POSTOPERATIVE COMPLICATIONS IN FREE FLAP RECONSTRUCTION FOR HEAD AND NECK CANCER Ernest D Gomez, MD, MTR, Punam Thakkar, MD, Karthik Rajasekaran, MD, Robert Brody, MD, Rabie Shanti, DMD, MD, Jason G Newman, MD, Steven B Cannady, MD; Hospital of the University of Pennsylvania

Poster Listing

B134: A SALVAGE ALGORITHM FOR FINDING RECIPIENT VESSELS IN THE MULTIPLY OPERATED, VESSEL DEPLETED NECK L E Cohen, MD[1], J Z Yu, MD[1], JT Stranix, MD[1], K Atiyeh[2], J P Levine[1], A S Jacobson[2]; [1]Institute of Reconstructive Plastic Surgery (Department of Plastic Surgery), New York University Langone Medical Center, New York, NY, [2]Department of Otolaryngology Head and Neck Surgery, New York University Langone Medical Center, New York, NY

B135: LONG-TERM IMAGING OF DOUBLE BARREL FIBULA FLAPS FOR MANDIBULAR RECONSTRUCTION John T Stranix, MD[1], Casian Monaco, MD[1], Leslie E Cohen, MD[1], Adam S Jacobsen, MD[2], Lawrence E Brecht, DDS[1], David L Hirsch, DDS, MD[3], Jamie P Levine, MD[1]; [1]Hansjorg Wyss Department of Plastic Surgery, NYU Langone Medical Center, [2]Department of Otolaryngology, NYU Langone Medical Center, [3]Department of Oral Surgery, Lenox Hill Hospital

B136: COMPUTER GENERATED CUSTOM PEEK IMPLANTS FOR CRANIOFACIAL RECONSTRUCTION: ANATOMIC CONSIDERATIONS AND ACQUIRED PEARLS Gerald J Cho, MD, Adam S Jacobson, MD, Jamie P Levine, MD, David Harter, MD, Stephen M Warren, MD, David A Staffenberg, MD; NYU Langone Medical Center

B137: MICROVASCULAR FREE FLAP RECONSTRUCTION OF THE HEAD AND NECK IN THE PEDIATRIC POPULATION Steven J Caldroney, DDS, MD, Nicholas F Callahan, DDS, MD, Chad Dammling, DDS, MD, John Caccamese, DDS, MD, FACS, Joshua E Lubek, DDS, MD, FACS, Donita Dyalram, DDS, MD, FACS; University of Maryland Medical Center

B138: DUPLEX IMAGING IS ADEQUATE FOR PREOPERATIVE ARTERIAL EVALUATION FOR FIBULA FREE FLAPS AND FREQUENTLY CHANGES FREE FLAP SELECTION. Lauren B Moneta, MD, Jennifer Wherley, BA, Erica Mitchell, MD, Gregory L Moneta, MD, Mark K Wax, MD; Oregon Health & Science University

B139: SUBMENTAL ISLAND FLAP RECONSTRUCTION OF TRANSORAL ROBOTIC SURGERY OROPHARYNGEAL DEFECTS Lewis J Overton, MD, Trevor Hackman, MD; University of North Carolina - Chapel Hill

B140: SHOULDERING THE LOAD OF MANDIBLE RECONSTRUCTION: 74 CASES OF OROMANDIBULAR RECONSTRUCTION WITH THE SCAPULA TIP FREE FLAP David H Yeh, MD, FRCSC, Danny J Lee, BSc, Kevin Fung, MD, FRCSC, Danielle MacNeil, MD, FRCSC, Anthony Nichols, John Yoo, MD, FRCSC; Western University

B141: TRANSORAL ROBOTIC SURGERY IN MANAGEMENT OF SUPRAGLOTTIC MALIGNANCIES: A FEASIBILITY STUDY AT A TERTIARY CANCER CENTRE IN INDIA. Karan Gupta, MS, DNB, Surender Dabas, MS, DNB, Reetesh Ranjan, MS, Yogendra S Bhakuni, MS; Rajiv Gandhi Cancer Institute and Research Centre, New Delhi, India

B142: HAEMORRHAGE POST TRANSORAL ROBOTIC SURGERY IN OROPHARYNGEAL CARCINOMA: INCIDENCE, RISK FACTORS AND PREVENTION. Karan Gupta, MS, DNB, Surender Dabas, MS, DNB, Saurabh Gupta, MS, MCh, Reetesh Ranjan, MS; Rajiv Gandhi Cancer Institute and Research Centre, New Delhi, India

B143: IS SUBMANDIBULAR GLAND SPARING NECK DISSECTION ALONG WITH TRANSORAL ROBOTIC SURGERY FOR OROPHARYNGEAL AND SUPRAGLOTTIC MALIGNANCIES ONCOLOGICALLY SAFE IN CN0 PATIENTS? AN INSTITUTIONAL REVIEW. Reetesh Ranjan, MS, Surender Dabas, MS, DNB, Karan Gupta, MS, DNB, Himanshu Shukla, MS, DNB; Rajiv Gandhi Cancer Institute and Research Centre, New Delhi, India

B144: ONCOLOGICAL OUTCOME IN EARLY HPV NEGATIVE OROPHARYNGEAL MALIGNANCIES FOLLOWING TORS AS A SINGLE TREATMENT MODALITY. Surender Dabas, MS, DNB, Karan Gupta, MS, DNB, Reetesh Ranjan, MS, Suhas K R, MS, DNB; Rajiv Gandhi Cancer Institute and Research Centre, New Delhi, India

B145: RATE AND LOCATION OF REGIONAL FAILURE AND FISTULA FORMATION FOR HPV+ OROPHARYNGEAL SQUAMOUS CELL CARCINOMA TREATED WITH TORS Richard B Cannon, MD, Sapna Patel, MD, Anisha Noble, MD, Sharat C Raju, MD, Jeffery J Houlton, MD, Neal D Futran, DMD, MD, Eduardo Mendez, MD, MS; University of Washington

Poster Listing

B146: THE CLINICAL APPLICABILITY OF PREDICTIVE MODELING IN HEAD AND NECK CANCER Chris Lee, MD[1], Cherie-Ann O Nathan, MD, FACS[1], Jay Piccirillio, MD[2], Dorina Kallogjeri, MD, MPH[2], Vikas Mehta, MD, MPH, FACS[1]; [1]LSUHSC-Shreveport, [2]Washington University School of Medicine

B147: MODELING DRIVERS OF ORAL INTAKE IN HEAD AND NECK CANCER SURVIVORS Alicia Estrella, DMD, G. Brandon Gunn, MD, Abdallah Sherif Radwan Mohamed, MD, Chifton D Fuller, MD, PhD, Martha Barrow, MPH, Stephen Y Lai, MD, PhD, Jan S Lewin, PhD, David Rosenthal, MD, Katherine Hutcheson, PhD; MD Anderson Cancer Research Center

B148: OUTCOME AND PROGNOSTIC FACTORS FOR PAROTID ACINIC CELL CARCINOMA: A NATIONAL DATABASE STUDY Claudia Scherl, MD[1], Masanari Kato, BS[1], Bulent Erkul, MD[1], Shaun Nguyen, Professor[1], Evan Graboyes[1], Viswanathan Palanisamy, Professor[1], Heinrich Iro, Professor[2], Shai White-Gilbertson, PhD[1], Elizabeth Garrett-Mayer, Professor[1], Terrence Day, Professor[1]; [1]Medical University of South Carolina, [2]Friedrich-Alexander-University Erlangen-Nuremberg (FAU), Germany

B149: NECK SPASM: AN UNDER-REPORTED SYMPTOM IN LONG-TERM OROPHARYNX CANCER SURVIVORS? Jhankruti Zaveri, MPH, James Zafereo, BA, Rachel Hubbard, BS, Chifton D Fuller, MD, PhD, Abdallah Sherif Radwan Mohamed, MD, Stephen Y Lai, MD, PhD, G. Brandon Gunn, MD, Katherine Hutcheson, PhD; MD Anderson Cancer Center

B150: DEFINING THE IDEAL CANCER SURVEILLANCE FOR OROPHARYNGEAL CANCER PATIENTS, CONTINUITY OF CARE MULTIDISCIPLINARY PATHWAY, PROSPECTIVE LONGITUDINAL STUDY Moran Amit, Beth M Beadle, Randal S Weber, Amy C Hessel; MD Anderson Cancer Center

B151: SLP REFERRAL PRACTICES AMONG HEAD & NECK CANCER PHYSICIANS Lisa M Evangelista, CScD, Ahmed Bayoumi, MD, Maggie Kuhn, MD; University of California, Davis, Medical Center

B153: FACTORS DELAYING DISCHARGE IN HEAD AND NECK-FREE FLAP SURGERY: WHEN PHYSICIAN INTERVENTION REACHES ITS LIMIT Peter T Dziegielewski, MD, FRCSC, Dustin Lang, MD, Sanjeev Balamohan, Natalie L Silver, MD, MS, Brian J Boyce, Raja Sawhney, MD, MFA, FACS; University of Florida

B154: THYROID FUNCTION MONITORING AFTER NECK RADIOTHERAPY Zahrah Taufique, MD, MBA, Emily Kamen, BA, Prashant Rao, BS, Babak Givi, MD; NYU Medical Center

B155: VARIATIONS OF THE TRAPEZIUS BRANCH OF THE SPINAL ACCESSORY NERVE IN CADAVER NECK DISSECTIONS Adam Howard, BS[1], Caitlin Bertelsen, MD[2], Rachael Raffle, MD[2], Niels Kokot, MD[2]; [1]Keck School of Medicine of USC, [2]Keck Medical Center of USC

B156: VALUE OF ADDITION OF POSITRON EMISSION TOMOGRAPHY FOR PRIMARY HEAD AND NECK MALIGNANCY Austin Maas[1], Christopher Britt, MD[2], Gregory Hartig, MD[1]; [1]University of Wisconsin Hospitals and Clinics, [2]Johns Hopkins University

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April 26 - 27, 2017

Manchester Grand Hyatt, San Diego, CA

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