



# **Department of Otolaryngology - Head and Neck Surgery**

***FORTIETH ANNUAL***

**RESIDENTS' RESEARCH DAY**

**Friday, April 25, 2014  
Conron Hall, University College  
Western University · Canada**

**CONTINUING PROFESSIONAL DEVELOPMENT  
PLANNING COMMITTEE MEMBERS  
Disclosure Form**

I have/have not had in the past 2 years, a financial interest, arrangement or affiliation with one or more organizations that could be perceived as a direct/indirect conflict of interest in the content of the subject of this or any other program.

1. Anthony Nichols: None
2. Lorne Parnes: None
3. Brian Rotenberg: None
4. Leigh Sowerby: None
5. John Yoo: None

**DISTINGUISHED VISITING PROFESSOR**  
**Department of Otolaryngology -**  
**Head and Neck Surgery**

***DR. PATRICK J. GULLANE***

***Professor***

***Department of Otolaryngology-Head and Neck Surgery,***  
***Professor of Surgery, Faculty of Medicine,***  
***University of Toronto, Toronto Ontario***

***Sponsored by Karl Storz Endoscopy***

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**DISTINGUISHED ALUMNUS**  
**Department of Otolaryngology-**  
**Head and Neck Surgery**

***DR. GRANT GILLMAN***

***Associate Professor***

***Director, Division of Facial Plastic &***  
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***University of Pittsburgh, PA***

***Sponsored by Med-EL Canada***

**DEPARTMENT OF OTOLARYNGOLOGY –  
HEAD AND NECK SURGERY  
RESIDENTS’ RESEARCH DAY PROGRAM**

8:00 – 8:30 *COFFEE IN THE EXHIBITORS’ AREA*

8:30 – 8:35 **WELCOME and Introduction of Session Chair** **Dr. John Yoo**

**CHAIRMAN – DR. COREY MOORE**

8:35 – 8:45 **Dr. Matthew Harris** Factors Associated With Lingual Tonsillar Hypertrophy  
in Canadian Adults (Supervisor: Dr. Sowerby)

8:45 – 8:55 *Interactive Discussion*

8:55 – 9:05 **Dr. Krupal Patel** The Mutational Landscape of Anaplastic Thyroid  
Cancer Predicts Response to Targeted Therapy  
(Supervisor: Dr. Nichols)

9:05 – 9:15 *Interactive Discussion*

9:15 – 9:25 **Dr. Chandheeb Rajakumar** Primary Care Practitioner and Emergency Room  
Employee Knowledge of Epistaxis First-Aid  
Management (Supervisor: Dr. Sowerby)

9:25 – 9:35 *Interactive Discussion*

9:35 – 10:05 *COFFEE IN THE EXHIBITORS’ AREA*

10:05 – 10:15 **Dr. Winsion Chow** The Utility of Routine Pathological Analysis after  
Tonsillectomy in Adults (Supervisor: Dr. Rotenberg)

10:15 – 10:25 *Interactive Discussion*

10:25 – 10:35 **Dr. Jordan Glicksman** Informed Consent When Prescribing Medication: A  
Randomized Controlled Trial  
(Supervisor: Dr. Rotenberg)

10:35 – 10:45 *Interactive Discussion*

10:45 – 10:50 **INTRODUCTION of DR. PATRICK GULLANE** **Dr. John Yoo**

10:50 – 11:45 **Dr. Patrick Gullane** My Journey through Forty Years of Otolaryngology –  
Head & Neck Surgery: Lessons Learned

11:45 – 12:00 *Interactive Discussion*

12:00 – 13:00 *LUNCH IN THE GREAT HALL, SOMERVILLE HOUSE*

## CHAIRMAN – DR. DUNCAN MACRAE

13:00 – 13:10 **WELCOME BACK**

13:10 – 13:20 **Dr. Samantha Tam** Outcome Measurements in Obstructive Sleep Apnea:  
Beyond the Apnea-Hypopnea Index  
(Supervisor: Dr. Rotenberg)

13:20 – 13:30 *Interactive Discussion*

13:30 – 13:40 **Dr. David Yeh** Surgeon-Estimated Costs of Common Surgical  
Consumables in Otolaryngology  
(Supervisor: Dr. Sowerby)

13:40 – 13:50 *Interactive Discussion*

13:50 – 14:00 **Dr. Christopher Chin** Reducing Surgical Costs in Otolaryngology via  
Assessment of Tray Redundancy  
(Supervisor: Dr. Rotenberg)

14:00 – 14:10 *Interactive Discussion*

14:10 – 14:20 **Dr. Jenna Theriault** Changing Admission Criteria for Surgical Patients  
Undergoing Surgery for Sleep Apnea: Applying Modern  
Evidence (Supervisor: Dr. Rotenberg)

14:20 – 14:30 *Interactive Discussion*

14:30 – 14:35 **INTRODUCTION of DR. GRANT GILLMAN** **Dr. Lorne Parnes**

14:35 – 15:25 **Dr. Grant Gillman** Lessons learned from Revision Septoplasty Surgery

15:25 – 15:40 *Interactive Discussion* **Dr. Duncan MacRae**

15:40 – 15:50 **PRESENTATION OF AWARDS**

15:50 – 16:00 **Evaluation Form Completion**

# FACTORS ASSOCIATED WITH LINGUAL TONSILLAR HYPERTROPHY IN CANADIAN ADULTS

*Dr. Matthew Harris*

## **OBJECTIVE:**

The lingual tonsil consists of reactive oropharyngeal lymphoid tissue found at the base of tongue between the palatine tonsils. Hypertrophy of the lingual tonsil tissue in the adult patient is thought to contribute to the pathophysiology of obstructive sleep apnea, but the underlying cause of lingual tonsil hypertrophy (LTH) in the adult patient is less well understood. Previous studies have suggested that the lingual tonsils may undergo compensatory hyperplasia post-tonsillectomy in children, although it is unknown if this occurs or persists in adulthood. Recently, laryngopharyngeal reflux (LPR) and body mass index (BMI) have been shown to be independently associated with lingual tonsil hypertrophy in a group of Korean adults with obstructive sleep apnea.

The primary objective of this study is to determine if an association with LTH exists with LPR, BMI or previous tonsillectomy in a population of Canadian adults presenting for Otolaryngologic assessment.

## **METHODS:**

Adult patients presenting for consultation to an academic Rhinology/General Otolaryngology practice were eligible for enrollment. Endoscopic photographs of the base of tongue and larynx were captured. These were graded for lingual tonsil hypertrophy and laryngopharyngeal reflux by blinded examiners. A retrospective review of patient demographics including age, BMI, Reflux Symptom Index and history of tonsillectomy was performed. Comparison among grades of lingual tonsil hypertrophy using a Chi-Squared test for discrete variables, and regression analysis for demographic data was performed.  $P < .05$  was considered significant.

## **RESULTS:**

Preliminary data demonstrates that 25% of enrolled subjects had prior tonsillectomy. There was no significant difference in LTH between the groups. RFS  $>7$  or RSI  $>13$  was considered positive for LPR. The frequency of LPR was high and there was no significant difference in LTH compared to patients without LPR. A BMI  $>30$  (obese) was seen in 35% of patients. There was a trend to larger lingual tonsils as compared to the BMI  $<30$  group, with preliminary data approaching significance.

## **CONCLUSIONS:**

This study presents data regarding the epidemiology and factors associated with LTH in a population of Canadian adults.

*Supervisor: Dr. Leigh Sowerby*

# THE MUTATIONAL LANDSCAPE OF ANAPLASTIC THYROID CANCER PREDICTS RESPONSE TO TARGETED THERAPY

*Dr. Krupal Patel*

## **OBJECTIVE:**

Anaplastic thyroid cancer (ATC) is perhaps the most aggressive human malignancy with survival often measured in months and sometimes weeks. There is urgent need for new treatments to improve outcomes for patients suffering with this disease. Comprehensive genetic analysis of this tumor type has the potential to identify novel therapeutic targets in ATC, however such a study has not been reported to date.

## **METHODS:**

Thirty seven ATC tumors and 13 cell lines underwent whole exome sequencing. Mutations were further confirmed with targeted re-sequencing. The cell line panel was then interrogated with a panel of inhibitors directed against druggable genetic changes identified in the sequencing.

## **RESULTS:**

Recurrent mutations were observed in multiple locations in tumor suppressors TP53 (50%) and NF1 (10%). Novel mutations not previously reported ATC were observed in candidate tumor suppressors ACIN1 and TTC12 (37% and 20%, respectively). Mutations were noted in canonical hotspots in oncogenes BRAF (20%), NRAS (10%) and PIK3CA (3%). Cell lines harboring activating mutations in BRAF and PIK3CA were markedly more sensitive to their respective targeted inhibitors when compared with the remainder of the cell line pool ( $p < 0.05$ ).

## **CONCLUSION:**

Our study represents the first next generation sequencing analysis of anaplastic thyroid cancer and has identified multiple genomic targets that predict drug response. These findings have the potential to dramatically improve outcomes for patients suffering with this rare, but deadly disease.

*Supervisor: Dr. Anthony Nichols*

# PRIMARY CARE PRACTITIONER AND EMERGENCY ROOM EMPLOYEE KNOWLEDGE OF EPISTAXIS FIRST-AID MANAGEMENT

*Dr. Chandheeb Rajakumar*

## **OBJECTIVE:**

Epistaxis is common and can be life-threatening. It is usually managed initially, and often exclusively, by primary care physicians. Despite this, many family physicians and Emergency Room (ER) staff practice inappropriate first-aid measures in epistaxis management. We sought to determine management trends from these health care providers in order to identify where knowledge requires improvement.

## **METHODS:**

This study was conducted in two parts: 1) ER attending physicians, resident physicians training in the ER, and ER nurses were surveyed in a tertiary-care teaching hospital's emergency department. 2) Family physicians attending a continuing medical education event were also surveyed. Multiple-choice questionnaires asked respondents to identify where to pinch and apply pressure to the nose and how patients should be positioned during an acute episode of epistaxis.

## **RESULTS:**

Regarding where to place pressure, 19.2% of family physicians, 45% of ER attending physicians, 50% of residents, and 8.7% of ER nurses correctly responded to place pressure over the ala, thus tamponading Kiesselbach's plexus, the source of 95% of epistaxes. Regarding positioning, all groups responded similarly with 50-62.5% responding correctly to tilt the patient's head forward, thus protecting the airway. Of concern, 5-8.7% of family physicians, ER attending physicians, and ER nurses suggested tilting the head backwards, which can lead to airway obstruction.

## **CONCLUSIONS:**

Most family physicians, ER attending and resident physicians, and ER nurses were not able to identify the correct first-aid measures to take in epistaxis management. This highlights the need for greater emphasis on this condition in undergraduate and continuing medical education.

*Supervisor: Dr. Leigh Sowerby*



# THE UTILITY OF ROUTINE PATHOLOGICAL ANALYSIS AFTER TONSILLECTOMY IN ADULTS

*Dr. Winsion Chow*

## **OBJECTIVE:**

The purpose of this study is to determine the rate of occult pathology in routine analysis of tonsillectomy specimens from non-malignant cases such as sleep apnea or recurrent tonsillitis.

## **METHODS:**

130 consecutive charts of tonsillectomies performed for non-malignant conditions between 2007 and 2011 were reviewed. Data on age, indications for surgery, preoperative and intraoperative clinical findings and final pathology results were collected. A literature review of studies examining the rate of occult malignancy in tonsillectomy specimens was also performed, and the combined data was pooled. The financial impact of routine tonsil pathological analysis was determined.

## **RESULTS:**

In 130 patients, there was not a single case of occult malignancy. After study inclusion and exclusion criteria were met, a review of the literature yielded 4205 pooled cases of tonsillectomy specimens with no case of unsuspected occult malignancy. The financial impact of routine histopathological analysis at our institution was determined to be \$2881.13 per year.

## **CONCLUSION:**

Routine pathological analysis of tonsil specimens in non-malignant surgical cases to rule out occult malignancy is not supported by current evidence and not financially sound. Modern evidence does not support the need for even gross specimen analysis in these cases.

*Supervisor: Dr. Brian Rotenberg*

# **INFORMED CONSENT WHEN PRESCRIBING MEDICATION: A RANDOMIZED CONTROLLED TRIAL**

*Dr. Jordan Glicksman*

## **OBJECTIVES/HYPOTHESIS:**

To determine patient recall of specific risks associated with medication prescription and whether or not handouts are an effective tool to augment the informed consent process.

## **STUDY DESIGN:**

Double-blinded, randomized, controlled trial.

## **METHODS:**

Informed consent for prednisone prescriptions was studied by comparing the effect of a verbal discussion (describing 10 specific adverse drug reactions) in conjunction with a handout going over same, to a verbal discussion alone. Blinded assessments occurred by telephone interview 2 to 4 weeks following the intervention. Outcomes assessed were the number of risks of prednisone that patients could list and the number of risks they recalled having discussed with their physician. Other demographic details were also collected.

## **RESULTS:**

Twenty-five participants were randomly allocated to each group. Without prompting, the median number of risks spontaneously recalled by the handout group was not significantly different than the control group, and both groups had very low recall (two vs. one,  $P = .24$ ). When provided a list of potential side effects, it was observed that the handout group recalled a higher median number of risks having been discussed with their physician compared to patients in the control group (eight vs. five,  $P = .003$ ). The groups' demographics were otherwise identical.

## **CONCLUSIONS:**

Patients in general did not remember discussing adverse prednisone risks with their physician even a short time after the discussion took place. Although the patient handout resulted in improved recall of risks following the prescription of prednisone, its importance in the informed medication consent process remains an open question.

## **LEVEL OF EVIDENCE:**

1b

*Supervisor: Dr. Brian Rotenberg*

# **OUTCOME MEASUREMENTS IN OBSTRUCTIVE SLEEP APNEA: BEYOND THE APNEA-HYPOPNEA INDEX**

*Dr. Samantha Tam*

## **OBJECTIVE:**

The apnea-hypopnea index (AHI) is overwhelmingly used as the main therapeutic metric in the assessment of obstructive sleep apnea (OSA) in surgical studies. However using AHI as sole measure is problematic. This study investigates the utility of other outcome measures for patients with OSA undergoing surgery.

## **STUDY DESIGN:**

Systematic review of cohort and review studies.

## **METHODS:**

A review was performed using a PubMed database. English articles focusing on outcome measures in adults with OSA were included. Studies in pediatric populations, those combining obstructing and central sleep apnea, and those without the use of outcome measures were excluded. Papers were categorized according to level of evidence. The Downs and Black scale and AMSTAR scale were used to assess quality.

## **RESULTS:**

Of a total of 10,454 retrieved articles, 21 studies met inclusion and exclusion criteria. Most papers related to CPAP outcomes. Many categories of outcome measures were found: general quality of life, OSA specific quality of life, measurements of sleepiness, performance, and physiological. Subjects with OSA scored differently in measurement tools in all categories compared to control populations or after treatment, and generally a poor correlation with AHI was seen.

## **CONCLUSIONS:**

The literature shows a range of tools based on symptoms and physiology of OSA that can assess effects of treatment. Assessment of surgical treatment for OSA should not be limited to AHI as an outcome, nor should this be the only outcome stressed.

*Supervisor: Dr. Brian Rotenberg*

# **SURGEON-ESTIMATED COSTS OF COMMON SURGICAL CONSUMABLES IN OTOLARYNGOLOGY**

*Dr. David Yeh*

## **BACKGROUND:**

The current fiscal climate is placing increasing importance on hospital procedures. Disposable instruments and consumables play a major role, but the end user (surgeon) is often unaware of the cost of these materials.

## **OBJECTIVES:**

(1) To assess the knowledge of cost of disposable instruments and consumable products. (2) To gauge interest in greater access to this information and the potential to change practice.

## **METHODS:**

A paper-based anonymous questionnaire was administered in the Department of Otolaryngology at McGill University and at Western University asking for estimation of cost for 23 commonly used products in the operating room. Estimations were considered accurate if within +/- 50% of the true cost at the respective institution.

## **RESULTS:**

The average accuracy was 28%, with a standard deviation of 14%. There was no significant difference between residents (30.7%) and staff (26%). More than 75% of participants were incorrect on 11 of the disposable products. 82% of participants felt that greater information would change their use of consumables.

## **CONCLUSION:**

Surgical residents and staff have a generally poor knowledge of the cost of common consumable products used in the operating room. There is potential for increased awareness of cost to change behaviour.

*Supervisor: Dr. Leigh Sowerby*

# REDUCING SURGICAL COSTS IN OTOLARYNGOLOGY VIA ASSESSMENT OF TRAY REDUNDANCY

*Dr. Christopher Chin*

## **OBJECTIVES:**

Health care costs in Canada continue to rise. As a result of this relentless increase in healthcare spending, ways to increase efficiency and decrease cost are constantly being sought.

Surgical treatment is the mainstay of therapy for many conditions in the field of Otolaryngology- Head and Neck Surgery. Surgical costs in general exceed those of medical care. The evidence suggests that room exists to optimize tray efficiency as a novel means of cost savings in the Operating Room. Our goal was to show that significant cost-savings could be realized at our institution when the surgical trays were optimized.

## **METHODS:**

We conducted a review of instruments on surgical trays for 5 commonly performed procedures between July 5<sup>th</sup>, 2013 and September 20<sup>th</sup>, 2013 at St Joseph's Hospital. The Instrument Utilization Rate was calculated; we then designed new 'optimized' trays based on which instruments were used at least 20% of the time. We obtained tray building times from Central Processing Department (CPD), then calculated an overall mean time per instrument (to pack the freshly washed instruments). We then determined the time that could be saved by using our new optimized trays, and used the CPD technician salary to calculate potential savings.

## **RESULTS:**

In total, 226 instrument trays were observed (Table 1). The average Instrument Utilization Rate was 27.8% (+/- 13.1). Our optimized trays, on average, reduced tray size by 57%. The average time to pack one instrument in CPD was 17.7 seconds. Based on the number of procedures performed in 2013, the estimated cost savings to our institution for the five trays is \$7,162 CAD per year.

## **CONCLUSION:**

By selectively reducing our trays, we plan to reduce tray content by an average of 57%. We expect this will result in savings of \$7,162 each year. While not massive in number, it is important to remember that this number looks at only 5 procedures in the Department of Otolaryngology- Head and Neck Surgery. If this was expanded city-wide to the rest of the departments, the savings could potentially be quite substantial.

*Supervisor: Dr. Brian Rotenberg*

# CHANGING ADMISSION CRITERIA FOR PATIENTS UNDERGOING SURGERY FOR SLEEP APNEA: APPLYING MODERN EVIDENCE

*Dr. Jenna Theriault*

## **OBJECTIVE/HYPOTHESIS:**

The purpose of this study is to transform the current historical policy of mandatory post-operative monitoring for patients with obstructive sleep apnea into a scientifically based algorithm that uses modern evidence to determine who actually needs monitoring and who does not. Our hypothesis is that most patients with OSA undergoing surgery can be safely discharged home without any subsequent respiratory complications.

## **STUDY DESIGN:**

Prospective Cohort Study.

## **METHODS:**

Fifty patients (age  $45.4 \pm 12.4$ , male 39, female 11), with sleep-study proven OSA (AHI  $24.3 \pm 22.2$ ) that underwent multi-level sleep surgery from June 2011 to September 2013 were included in the study; the same surgeon operated on all patients. All patients had the St. Joseph's OSA risk score calculated preoperatively, and then within the post anesthesia care unit (PACU). The patients were then stratified into two categories: 1.) Safe for same day discharge, 2.) Requiring admission for overnight O<sub>2</sub> saturation monitoring. Groups were compared across age, sex, AHI, BMI, mean-O<sub>2</sub>-saturation, minimum-O<sub>2</sub>-saturation, length of time in PACU, narcotic use, smoking, surgery type, and other co-morbidities. Our primary outcome measures were any OSA specific post-operative complications in both the admitted and discharged group. In addition, we reviewed the patient's charts for any factors that may predict post operative complications requiring monitoring.

## **RESULTS:**

Seventy-eight percent (39) of patients met criteria for same day discharge, and 22% (11) required admission based on our screening tool. For the discharged patients, we had a 0.0% readmission or complication rate for OSA-specific reasons. For the admitted patients, we had no OSA specific complications while admitted to hospital. Only one admitted patient needed CPAP use after surgery as a new prescription. When comparing the different patient variables (age, sex, AHI, BMI, mean O<sub>2</sub>-saturation, minimal O<sub>2</sub>-saturation, length of time in PACU, narcotic use, smoking, surgery type), no variables consistently predicted complications or need for admission ( $t(45 \text{ to } 47)=0.078 \text{ to } 1.835$ ,  $p=ns$ ).

## **CONCLUSIONS:**

The incidence of respiratory events requiring intervention following multi-level sleep surgery is significantly less than was initially predicted. Most patients with OSA undergoing surgery can be safely discharged home without any subsequent respiratory complications. In addition, those patients admitted for monitoring after surgery do not benefit from their admission.

*Supervisor: Dr. Brian Rotenberg*

## **AWARDS & PRIZES**

### **SCIENTIFIC ACHIEVEMENT AWARD:**

*Presented for the most impactful research project.*

Charles A. Thompson Plaque

### **PETER CHESKI INNOVATIVE RESEARCH AWARD**

*Presented for the most innovative research project.*

### **DEPARTMENT OF OTOLARYNGOLOGY – HEAD AND NECK SURGERY AWARD for PERFECT PITCH**

*Presented for the most eloquent presentation.*

### **RESIDENT BOOK AWARDS**

*Presented to residents who did not receive one of the above awards.*

### **SIMON KIRBY MOST CARING RESIDENT AWARD**

*Presented to the resident who demonstrates excellence in compassionate care.*

### **UNDERGRADUATE TEACHING AWARD**

*Presented to the resident with the highest teaching evaluation.*

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O.S.I.S. Medical

Southmedic Incorporated

Stryker Canada

## **Continuing Professional Development Planning Committee Members**

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Brian Rotenberg (Director)

Leigh Sowerby

John Yoo

## **Administrative Support**

Angelika Edwards

Ann Jones

Charlotte Towle

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