

Prince of Wales Otolaryngology Head and Neck Research Group

Annual Report 2018

Prince of Wales ORL Head and Neck Research Group



Health
South Eastern Sydney
Local Health District



UNSW
THE UNIVERSITY OF NEW SOUTH WALES

Prince of Wales Otolaryngology Head and Neck Research Group

2018 Second Annual Introduction to Report

Professor Thomas Havas (Chair)

2018 was the second year for the Prince of Wales ORL Head and Neck research group.

Ravjit Singh, our Research Fellow for the year, did an outstanding job in terms of coordinating clinical and research projects.

The role of the Research Fellow has now been formalized with regards to clinical responsibility. The Research Fellow acts as the department's primary liaison person with the Emergency Room, is responsible for ensuring the patient's are seen in a timely manner, triaged correctly, and admitted as appropriate. Part of this clinical responsibility involves a formal program of lectures and tutorials to Emergency Room Staff; both medical and nursing.

In addition, the Research Fellow coordinates the Department's research activities, minutes and organises the monthly research meetings, and is involved in the in-patient care of all of our patients.

The following report sets out the activity of the various department members, registrars, Research Fellows, ILP student, and other members of the Research Group.

The continued and expanding interest of registrars, house staff, and junior medical staff in becoming involved in the group has been particularly pleasing.

We were fortunate to have Dr Catherine Meller return to join the department, and her interest in facial nerve, facial re-animation, and cutaneous cancers has given the research group significant impetus.

An exciting development towards the end of the year has been the formation of the Head and Neck Cancer Foundation. This is a non-for-profit charity organisation, which has been formed to raise money to foster research into head and neck cancer at the Prince of Wales/ University of New South Wales.

Fundraising activities will commence in 2019. We are very enthused by the participation of John Fordham and the entire board in coordinated fundraising activity.

It is hoped that moneys raised from this foundation will not only pay our 2019 Research Fellow (Dr Anders Sideris) a wage, but there will be significant surplus funds for purchase of equipment and to fund deserving research projects.

The research group continues its thrust in terms of integrating medical and biomedical research, and you will notice that there are several research projects conjointly being undertaken with the Departments of Biomedical Engineering at both Sydney University and the University of New South Wales.

This integrative approach towards transitional medicine and the introduction of new technologies remains one of the primary focuses of the Research Group.

I am very enthusiastic about our further growth and expansion in 2019, and take this opportunity to thank all members of the group for their enthusiasm and contribution.

Prince of Wales ORL Head and Neck Research Group

The Prince of Wales ORL Head and Neck Research Group was formed in February 2017 and comprises a heterogeneous group interested in participating, promoting and partaking in research in the area of Otolaryngology and Head and Neck Surgery.

The group comprises of otolaryngologists, radiotherapists, nurses, speech therapists, registrars, residents and medical students.

Meetings are held monthly in an informal setting aimed at promoting a helpful and safe environment in which to discuss ideas pertaining to research in the area of Otolaryngology and Head and Neck Surgery.

The group is chaired by Professor Tom Havas, and key group members are;

- Dr I Jacobson.
- Dr S Choroomi.
- Dr AMohammadi
- Dr R Reddy
- Dr R Singh
- Dr T Holmes
- Dr B Cumming
- C Dow
- Dr L O'Connor
- Dr C Banks
- Dr J Lee
- Dr M Giles
- R Robinson and M Barnhart from the Department of Speech Therapy.
- P Gunner, the Clinical Nurse Consultant in Otolaryngology Head and Neck Surgery
- Dr Shein
- Dr Sideris

A number of projects have been undertaken in this year as both new projects and continuation of long term projects. These have been both basic science in nature and clinical reviews. The breadth and quality of projects is demonstrated by several studies being accepted at ASOHNs 2019 Conference.

The current studies that have been accepted or awaiting approval for publication include or presented:

The Role of Neck Dissection in High Grade Salivary Gland Carcinomas (Singh/Smee/Havas)

- This was presented at the *3rd European ENT Otolaryngology Conference* in London
- It was fortunate enough to receive a *Certificate of Recognition* as part of the presentation
- Also presented at ORL 2018 in Queenstown
- Accepted for **Poster Presentation** at the Australian Society of Otolaryngology Head and Neck Surgery's Annual Scientific Meeting, 9-11 March 2018,

The cost a delayed Tracheostomy Discharges to a Health Network (Singh/Havas)

- Presented at ORL in Queenstown 2018
- Accepted for **Poster Presentation** at the Australian Society of Otolaryngology Head and Neck Surgery's Annual Scientific Meeting, 9-11 March 2018,

Multidisciplinary Tracheotomy Teams: An Analysis of Patient Outcomes and Resource Allocation has been (Holmes/Jacobson/Havas)

- Accepted in Ear, Nose & Throat Journal.

Tracheostomy Teams: An Evaluation of Patient Outcomes and Resource Allocation" (Holmes/Jacobson/Havas)

- Accepted for **Poster Presentation** at the Australian Society of Otolaryngology Head and Neck Surgery's Annual Scientific Meeting, 9-11 March 2018,

A systematic review and meta-analysis of predictors of airway intervention in adult epiglottitis (Sideris/Havas)

- Submitted to The Laryngoscope awaiting final outcome
- Poster Presentation at Australian Society of Otolaryngologists and Head and Neck Surgeons Annual Scientific Meeting, March 9-11 2018

The Re-Emergence of Adult Epiglottitis: A Systematic Review of the Literature.(Sideris/Havas)

- Poster presentation at Australia Society of Otolaryngologists and Head and Neck Surgeons Annual Scientific Meeting, March 9-11 2018.

Retrospective Review of Orbital Exenteration at Prince of Wales Hospital (Cummings/Havas)

- Poster presentation at Australian Society of Otolaryngologists and Head and Neck Surgeons Annual Scientific Meeting, March 9-11 2018

This year the group has had its first medical student complete their thesis (ILP project). They assessed methods of control bleeding during endonasal sinus surgery:

Medical Student thesis project (ILP Project)

- Project completed
- Awaiting submission to Journal

Studies that are currently being written and pursued by members:

The prevalence of HPV in healthy tonsillar tissue within an unvaccinated paediatric population (Singh/Jacobson)

- Collecting samples and being analysed

3D Printing implantable Jaw allografts for insertion in patients undergoing mandibulectomy (Singh/Havas)

- Assessing stressors on Jaw in chewing normal motion
- Anatomical appropriate insertion of musculature and teeth

Development of a Biopolymeric Device for Use in Otolaryngology/ Head and Neck Surgery (Sideris/Havas)

Furthermore, our incoming Research Fellow (Dr Anders Sideris) has been fortunately awarded the Prince of Wales Hospital Foundation Novice Research Grant for his Masters Project in Vitro **Development of a Biopolymeric Device for Use in Otolaryngology/ Head and Neck Surgery**

Allied Health Involvement

We are very fortunate to have a multidisciplinary approach to our research with our allied health colleagues from speech pathology contributing to our group and research:

Recent publications:

‘Supportive Care in Cancer’ Journal - Content analysis of rehabilitation goals for patients following non-surgical head and neck cancer treatment.

Oral presentations at Australian and New Zealand Head and Neck/International Maxillo-Facial Society Conference in Melbourne 26-28th July:

SWOARS study - Optimising radiotherapy to Swallowing Organs at Risk with oropharyngeal tumours

Survivorship in surgery: Post-treatment swallowing outcomes in glossectomy patients.

Biomedical Engineering collaboration:

We are pursuing novel techniques in biomedical engineering and collaborating with both Sydney University Biomedical Engineering Department and UNSW Biomedical Engineering department.

With the University of New South Wales Biomedical Engineering Department the establishment of the first cross department project has begun. The project is a proof of concept and workflow methodology. The project is aimed at implantable 3D printable mandible reconstruction that can be used in replacement of autologous bone and tissue grafts. Biomedical Engineering students are given de-identified high resolution CT images of patients who have undergone mandibulectomies. The students produce a 3D printable implant that can withstand the force of chewing, allow for implantable teeth and muscular attachments. Furthermore, there must be a cosmetically adequate outcome as well. The first stage of this project has begun with measuring the stresses on the jaw and choosing an appropriate material, this will be followed by printing the jaws from the high resolution CT images

The group had its first successful Masters Thesis, the subject of which was precision imaging, templating and 3D laser printing for nasal modelling. There has been integration of this masters with the PhD currently being conducted with the group looking at in vitro growth of nasal cartilage. Biomedical Engineering students who are currently involved with the PhD have had the unique opportunity for observerships for complex open structure rhinoplasty surgery at the Prince of Wales Hospital. This is the first kind of integration and structure for biomedical engineering students enabling them to understand the ultimate goal of their project.

The 2019 Research Fellow has been working with the Department of Biomedical Engineering at UNSW in the area of drug impregnated absorbable meshes for use after surgical procedures, with Professor Havas as co-supervisor. This has progressed well with progression with results showing sustained release of time released drug and appropriate rate of integration of material.

Finally, with the assistance of the Biomedical Engineering UNSW the group is involved in establishing a novel Department of Translational Biomedical Engineering at UNSW. The joint department between Prince of Wales Otolaryngology Research Group and Biomedical Engineering will help encourage biomedical engineers integration into the clinical environment. The purpose of which is to help identify key clinical issues that can be addressed with a combined approach. Furthermore, the these biomedical engineers can have a grass root level understanding of how their technology can be integrated into the clinical environment. The integrated unit is a fantastic opportunity for members of the Research Group to gain access to a basic science research while



maintaining their clinical acumen. The opportunity for members to undergo primary bench top based research is a unique opportunity to the research group.

Research Fellow Report:

The research fellow position for the Head and Neck Research Group has been formally established in 2018 as a position that coordinates and undertakes research with key members of the group. The purpose of this position was to encourage young ENT inclined doctors a pathway to undertake research but also maintain a clinical conjoint.

The clinical conjoint has enabled junior ENT inclined doctors a supervised and safe way to transition into On-call. The primary clinical responsibility of the Fellow is to provide a direct point of contact for the Emergency Department, enabling a timely assessment and appropriate triaging of patients. This has been vital in delivering more efficient directed specialist care to patients presenting to the ED decreasing wait times till review. Finally, it has allowed for teaching and mentoring from senior registrars to the junior staff members.

We have been fortunate enough to obtain funding for this position in 2019 through the generosity of the Head and Neck Cancer Foundation.

In 2018 the Research Fellow undertook numerous research initiatives:

- The Role of Neck Dissection in High Grade Salivary Gland Carcinomas (Singh/Smee/Havas)
 - This project has been presented internationally at the 3rd European ENT Otolaryngology conference London and was awarded a *Certificate of Recognition*
- The cost a delayed Tracheostomy Discharges to a Health Network (Singh/Havas)
- The prevalence of HPV in healthy tonsillar tissue within an unvaccinated paediatric population (Singh/Jacobson)
- Recurrence of a Acinic Cell Carcinoma within the Nasal cavity (Singh/Choroomi)
- 3D Printing implantable Jaw allografts for insertion in patients undergoing mandibulectomy (Singh/Havas)
- Integration with the Biomedical Engineering department of UNSW and the establishment of a Department of translational biomedical engineering

In 2018 the Research fellow has undertaken efforts to improve the clinical environment of the Otolaryngology Department of Prince of Wales Hospital

- Establishment of the ENT Rapid Access ED clinic
- Establishment of the Facial Nerve Clinic Prince of Wales Hospital
- Integration with the Neurophysiology Department at Prince of Wales Hospital establishing a novel referral pathway of any hospital in Sydney for assessment of facial nerve patients.
- Teaching events and up-skilling of junior staff and nursing staff:
 - Up-skilling of CNC to enable use of FNE
 - Teaching medical staff within the ED assessment management of common ENT presentations at Registrar and JMO ED weekly teaching
- Establishment of online and live Handover documentation and tracking of Head and Neck Discussion patients.
- Streamlining ENT outpatient services within the Prince of Wales Hospital

Future Direction

We are extremely grateful for the ongoing success we have obtained this year and aim to build on it further in the years to come.

The integration with Department of Biomedical Engineering at Prince of Wales Hospital is an exciting a novel aspect of the group. We hope to further integrate into the Department of Translational Biomedical Engineering with ongoing lab based projects and observerships. With the growth of this department we hope to encourage a permanent academic position within the the University to help foster research.

We have been fortunate enough to have affiliation with the Head and Neck Cancer Foundation. The foundation has kindly given offered to fund the position of the research fellow and help support the research group. The ongoing finical support will help encourage ongoing lab based research, as well as purchasing of equipment for the group. Finally we wish to help develop the group and foundations integration be able to subsidise members to travel to attend conferences and workshop internationally. Part of this is we are aiming to develop international collaborations with institutions in North America (Harvard) and the United Kingdom (Cambridge) to garner momentum for participation in multi-site research.

With the establishment of Sydney's first integrated facial nerve clinic, with neurophysiology, the group hopes to encourage ongoing research within this field. There has been active data collection associated with this clinic and hope to encourage this in the future. In the future we hope to have a dedicated ENOG machine enabling onsite, realtime conduction of electrophysiology testing. Furthermore, we hope to have a dedicated Facial Nerve Physiotherapist attend all future facial nerve clinics.

Finally, we hope to establish an online data collection tool for head and neck cancer. Collating information pertinent to surgical outcomes in head and neck surgery. This will be a long term project of the group to establish a database of surgical outcomes.

Final Remarks

We are very grateful for the support of the Department of Surgery at Prince of Wales Hospital and the University of New South Wales Medical School. We are also extremely thankful for the support we have received from the Head and Neck Cancer Foundation, and their ongoing commitment.

The partnership with the University of New South Wales is a an exciting and promising area that we wish to foster in the years to come. The relationship the group has established is unique and one we wish to build on in the future.

We look forward to greater achievements for the POW ORL Head and Neck Research Group in the year ahead. We are aiming to integrate with other research groups within the Prince of Wales Hospital and further afield.

We invite interested readers of this report to contact us to gain further information about any aspect of our work or to attend any of our monthly meetings.