



Faculty of Dentistry
Te Kaupeka Pūniho
New Zealand's National Centre for Dentistry

Sir John Walsh
Research Institute

Research Day 2018

Thursday 30 August
Dunedin Public Art Gallery



Programme and Abstracts

All sessions in 8i bYX]b'Di V]W5fh; U`Yfm Auditorium (1st floor) unless otherwise noted

WELCOME AND INTRODUCTION TO SJWRI RESEARCH DAY 2018

Time	Presenter	
8.45am	Registration and CPD sign-on (Auditorium lobby)	
9am – 9.15am	Professor John Broughton Professor Alison Rich Professor Richard Cannon	Associate Dean (Māori) Acting Dean Director, Sir John Walsh Research Institute

THEME: UNDERSTANDING THE ORAL HEALTH OF NEW ZEALANDERS

Chair: Professor Murray Thomson

Featured programme presentations

9.15am – 9.20am

Professor Murray Thomson

Programme Leader, Dental Epidemiology and Public Health

Featured research programme introduction: Dental epidemiology and public health

9.20am – 9.50am

Professor Marco Peres

Director, ARCPDH | Adelaide Dental School, University of Adelaide

Keynote presentation: Population-based oral health studies in Australia: from surveillance to hypothesis-driven research

9.50am – 10.10am

Professor Murray Thomson

Department of Oral Sciences, University of Otago

Medication use and xerostomia among dependent older New Zealanders: findings from a national survey

10.10am – 10.30am

Associate Professor Jonathan Broadbent

Department of Oral Sciences, University of Otago

Antecedents of trajectories in untreated dental caries experience to age 45

10.30am – 11am

Morning tea and poster viewing (ODT Gallery)

3M ORAL CARE SPONSOR PRESENTATION

11am – 11.30am

Young-Chul Kwon

APAC Scientific Affairs and Education Manager, 3M Oral Care

Update on dental composites with focus on clinical relevance

STUDENT PRESENTATIONS (10 MINUTES EACH)

11.30am – 11.40am

Chuen Lin Hong

PGDipComDent candidate

Personality, dental neglect, and oral health: a longitudinal study

11.40am – 11.50am

Poppy Horne

DClinDent candidate (Periodontics)

Psychosocial aspects of periodontal disease diagnosis and treatment

11.50am – 12pm

Abbey Corbett

DClinDent candidate (Paediatric Dentistry)

Understanding restorative treatment decisions in the management of children and adolescents in New Zealand

12pm – 12.10pm

Shaikha Al Samahi

PhD candidate

Increased expression of advanced glycation end-products (AGE) and its receptor (RAGE) in normal dental pulp of Type 2 diabetics

12.10pm – 12.20pm

Caleb Lawrence

DClinDent candidate (Orthodontics)

Dental caries, tooth wear and dietary sugar intake in a sample of Northland Māori

12.20pm – 12.30pm

Divya Ramanan

DClinDent candidate (Orthodontics)

Jaw muscle overload as a possible cause of orofacial pain

12.30pm – 12.40pm

Elizabeth Williams

DClinDent candidate (Oral Pathology)

Investigation of the presence of human papillomavirus in verrucal-papillary lesions of the oral cavity

12.40pm – 1.30pm

Lunch and poster judging (ODT Gallery)

THEME: NEW TECHNOLOGIES AND THERAPEUTICS

Chair: Professor Warwick Duncan

1.30pm – 2pm

Professor Paul Cooper

Director of Research, School of Dentistry, University of Birmingham

Keynote presentation: Dental tissue regeneration: What are the modifying factors and how could a conducive environment for healing be generated?

STAFF PRESENTATIONS (15 MINUTES EACH)

2pm – 2.15pm

Dr Tanmoy Bhattacharjee

Postdoctoral Fellow

Tissue elasticity measurements using UltraD3 device

2.15pm – 2.30pm

Dr Jithendra Ratnayake

Assistant Research Fellow

Ionic substituted bovine-derived hydroxyapatite bone grafts for dental surgery applications

2.30pm – 2.45pm

Dr Nick Heng

Senior Lecturer

Dysgalacticin and Sanguinicin K11, two novel antimicrobial proteins (Bacteriocins) targeting important pathogens

2.45pm – 3pm

Associate Professor Dawn Coates

Research Associate Professor

Regulation and control of stem cells

continued over....

STUDENT PRESENTATIONS (10 MINUTES EACH)

3pm - 3.10pm

Zhen Dong

PhD candidate

A model research platform to investigate stem cell-based regeneration - deer antler proteomics

3.10pm - 3.20pm

Pip Greer

DClinDent candidate (Oral Medicine)

A small molecule inhibitor of Galectin-1 and oral squamous cell carcinoma; in vitro studies on therapeutic potential

3.20pm - 3.30pm

Golnoush Madani

PhD candidate

Expression and purification of Candida albicans multidrug efflux pump Cdr1 for structural studies

3.30pm - 3.50pm

Afternoon tea and poster viewing (ODT Gallery)

THEME: EVALUATING OUR TEACHING, LEARNING AND PRACTICE

Chair: Dr Lee Adam

STUDENT PRESENTATIONS (10 MINUTES EACH)

3.50pm - 4pm

Imad Al Lawati and Hind Al Maskari

BDS students

I am a lefty in a right-handed world - Qualitative analysis of clinical learning experience of left-handed undergraduate dental students

4pm - 4.10pm

Danni Chen

BDS student

Patient satisfaction and aesthetic outcome of single implant crown treatment completed in a University teaching setting

4.10pm - 4.20pm

Jodie Bryant

BDS (Hons) student

Comparison of using sodium hypochlorite with different immersion duration for decontaminating used implant healing abutments

4.20pm - 4.30pm

Ana Low

DClinDent candidate (Orthodontics)

Development of an in vivo model to investigate the effects of different adhesive removal methods around orthodontic brackets

STAFF PRESENTATIONS (15 MINUTES EACH)

4.30pm - 4.45pm

Dr Li Mei

Senior Lecturer

Efficacy of oral probiotics in managing biofilm formation in patients wearing fixed orthodontic appliances

4.45pm - 5pm

Dr Arthi Senthilkumar

Assistant Research Fellow

Challenges in clinical teaching investigated: towards sustainable staff recruitment and retention in dentistry

5pm - 5.15pm

Dr Carolina Loch Santos da Silva

Lecturer

When whales had teeth: dental morphology and ultrastructure in ancestral cetaceans from Antarctica

5.15pm - 5.30pm

Presentation of SJWRI Awards and meeting close (ODT Gallery)

Invited Keynote Presentation



Professor Marco Peres

**Director, Australian Research
Centre for Population Oral Health
(ARCPOH)**

**Population Oral Health, Adelaide
Dental School, University of Adelaide**

Marco Peres is a dentist with a PhD in Epidemiology. After almost 20 years in the Department of Public Health at the Federal University of Santa Catarina, Brazil, in 2012 Marco was appointed as a Professor and Director of the Australian Research Centre for Population Oral Health (ARCPOH), University of Adelaide, Australia. In August 2018 Marco will take the position of Professor of Dental and Oral Health Research, School of Dentistry and Oral Health, Griffith University, Australia.

An internationally recognised researcher in the field of Population Oral Health, Marco has been cited as one of the top ten most productive researchers in Public Health Dentistry internationally in the last half-century. Marco was the recipient of the 2017 International Association for Dental Research (IADR) Distinguished Scientist Award for Global

Oral Health Research. His research areas of interest include oral health surveillance, use of fluorides, inequalities in oral health, life course epidemiology and the relationship between oral health and general health. Marco is a founder member of the International Centre for Oral Health Inequalities Research and Policy (ICOHIRP) based at University College London, United Kingdom, a member of the Brazilian Commission of Social Determinants of Health and a member of the Global Burden of Metabolic Risk Factors for Chronic Diseases Collaboration, the deputy chair of the Expert Working Group for Fluoride of the Australian and New Zealand Nutrient Reference Values for Fluoride, a member of the Oral Health Expert Group of the Australian Burden of Diseases 2011 Study.

Marco is leading (CIA) an NHMRC partnership project grant to conduct the National Study of Adult Oral Health entitled *Delivering effective dental healthcare in 2020-2030: A national longitudinal partnership study of burden of oral diseases in Australia 2016-2020*. He was on the Editorial Board of *Community Dentistry and Oral Epidemiology* (2010-2012), and is currently Associate Editor of *Revista de Saude Publica/ Journal of Public Health* (2015-) and the *Brazilian Journal of Epidemiology* (2012-) and member of the Advisory Board of the *Australian Dental Journal* (2016-). Marco has supervised more than 30 Honours, Masters and PhD students in Public Health, Dentistry and Epidemiology, authored two books, twelve book chapters, and more than 200 peer-reviewed papers. His work has received almost 10,000 citations, with an h-index of 55.

9.20am - 9.50am

Population-based oral health studies in Australia: from surveillance to hypothesis-driven research

This presentation aims to provide an overview of existing population-based oral health-related studies conducted in Australia and their relevance for surveillance and hypothesis-driven research.

Mostly, I will present the main methodological aspects of four population-based studies: the National Dental Telephone Interview Survey (NDTIS), the National Child Oral Health Survey (NCOHS), the ongoing National Study of Adults Oral Health (NSAOH 2017-18) and The South Australian Early Childhood Data Project. Six examples of studies stemmed from these projects, some already published and some under preparation, will be presented. These studies vary from more descriptive, for surveillance purposes, such as 'Are there socio-demographic inequalities in changing toothache experience among Australian adults? A time trend analysis from 1994-2013' to more sophisticated ones using multilevel and Blinder Oaxaca decomposition analysis ('Modifiable Factors Explain Socioeconomic Inequalities in Dental Caries Among Australian Children').

I wish to also explore the data linkage capabilities ('Early life exposure to general anaesthesia affects children's development: findings from a South Australian data-linkage study') and studies which may challenge the dental professional status quo ('Do people with shortened dental arches have worse oral health-related quality of life than those with more natural teeth? A population-based study'). Finally, I intend to provide additional evidence of the effectiveness of water fluoridation on the prevention of dental caries in adults ('Preventive benefit of access to fluoridated water for young adults') and on the reduction of socioeconomic inequalities in dental caries ('Race- and Income-Related Inequalities in Oral Health in Australian Children by Fluoridation Status').

Invited Keynote Presentation



Professor Paul Cooper

**Oral Biology, School of Dentistry,
Institute of Clinical Sciences**

**College of Medical and Dental
Sciences, University of Birmingham**

Professor Paul Cooper obtained a BSc (Hons) in Genetics from Leeds University (1992) and received his PhD from the University of Birmingham, UK, in Cancer Sciences (1995).

He was then a postdoctoral researcher at Roswell Park Cancer Institute, New York, US, working on the molecular genetics of cancer, eye and ear predisposing syndromes. He subsequently returned to the UK to work for Novartis in the area of molecular therapeutic target identification in lung disease. In 2000 he joined the School of Dentistry at the University of Birmingham and became Professor of Oral Biology in 2012. He is currently the Director of Research and Deputy Head of School at the School of Dentistry.

Paul conducts research into dental tissue regeneration, the inflammatory/immune aspects of oral and dental disease and in the biomaterials area with particular focus on pulp biology. In 2010, he received the Young Investigator Award from the International Association for Dental Research.

He has served as President of the European Society of Dental and Craniofacial Stem Cells, is currently the Mineralised Tissue Group (MINTIG) Chair for the British Society for Oral and Dental Research (BSODR) and is a councillor on BSODR Management Committee. Paul has over 140 full publications (h-index=45) and authored several book chapters in the field of pulp biology and regenerative endodontics. He has supervised over 30 PhD students.

Paul serves on the Editorial Boards of the Journal of Dental Research, Journal of Endodontics and Journal of Periodontal Research. Paul has received significant funding from research councils, charities and industry to support his research. Paul completed his postgraduate certificate in learning and teaching in higher education (PGCILTHE) in 2003, is a Fellow of the Higher Education Academy and heads up Oral Biology teaching.

1.30pm - 2pm

Dental Tissue Regeneration: What are the modifying factors and how could a conducive environment for healing be generated?

Similar to other tissues or organs within the human body the dentine-pulp complex exhibits an innate ability to repair itself. However bacterial infection, uncontrolled inflammation and the clinical application of certain dental materials can impede the tooth's natural repair response. Increasing evidence is now accumulating indicating that signalling of dentine-pulp complex repair events can be induced by the local release of dentine matrix components which promote progenitor and stem cell responses.

The ability of materials, such as calcium hydroxide and mineral trioxide aggregate, to release these biostimulatory molecules from the tooth's tissues is likely important in their beneficial clinical effect. Development of novel biologically-based treatment approaches which are antibacterial and anti-inflammatory, and which facilitate the tissues innate regenerative abilities, will provide improved clinical approaches for restoration of the tooth's integrity for long-term patient benefit.

3M Oral Care Presentation



Dr Young-Chul Kwon

**Scientific Affairs & Education
Manager, APAC**

Oral Care Solutions Division,
3M Korea

Dr Kwon is 3M Oral Care's Asia-Pacific Scientific Affairs and Education Manager. After working in various positions within 3M Health Care for about 10 years, Dr Kwon completed a DDS degree in Chosun University in Kwangju, and Masters and PhD in dental science at Seoul National University, Seoul, Korea. Dr Kwon's specialty is Conservative Dentistry including composite restorations, and he has lectured internationally mainly on dental materials. Dr Kwon has taught in Seoul National University as an adjunct professor.

11am – 11.30am

Update on dental composites with focus on clinical relevance

Composite restoration has become an essential part of everyday dental practice with the improvement in dental adhesive systems, the increase in patient demand for aesthetics and more emphasis on preservation of tooth structure. Therefore, it is important to understand the material property of various composites and techniques of composite restoration.

This presentation will review the developments in composites and their restorations, from Hybrid composites to Nano composites and Bulkfill composites. Adhesives are an integral part of composite restoration and an update on the trends in contemporary adhesives and techniques will be discussed. Light Curing technology, which is another indispensable but important element of composite restorations, will also be touched on with the focus on key aspects to keep in mind for light curing.

This review on composite developments with reinforcement of key elements in adhesives and light curing will give the audience a practical and helpful overview of the contemporary composite restorations from both materials and clinical perspective.

SJWRI Research Day 2018 is made possible by the continued generous support of 3M Oral Care.

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Abstracts of staff and student presentations

Abstracts for staff and student presentations can be viewed and downloaded in PDF format from the SJWRI Research Day website: <https://www.otago.ac.nz/sjwri-rs>
Abstracts will be published in the New Zealand Dental Journal following the meeting.

Poster presentations

Posters are available for viewing during the breaks between sessions. We ask that presenters put up their posters before the beginning of the morning tea break, and take them down at the end of the afternoon tea break.
Judging will take place during the lunch break.

Posters to be presented (at time of press – late submissions may be added to the programme)

Theme: New Technologies And Therapeutics

PRESENTER	POSITION	TITLE
Ahmed HIM	DClinDent	Clinical evaluation of modified GIC restorations applied using ART
Chai SY	DClinDent	Effect of incisal preparation design on fracture strength and stress distribution of ceramic veneers
Chen M	DClinDent	Reliability of RFA in assessing implant stability: A retrospective study
Gee C	Assistant Research Fellow	Antimicrobial and cytotoxicity effects of silver nanoparticles on primary human gingival fibroblasts in vitro
Mei L	Senior Lecturer	Effect of non-fluoride agents on prevention of caries in primary dentition
Mei L	Senior Lecturer	Periodontal health during orthodontic treatment with clear aligners and traditional braces
Ratnayake J	Assistant Research Fellow	Comparative efficacy of endodontic medicaments & sodium hypochlorite against <i>Enterococcus faecalis</i> biofilms
Ratnayake J	Assistant Research Fellow	Laser and ultrasonic activated irrigation on eradicating a mixed-species biofilm
Ratnayake J	Assistant Research Fellow	Structural and biological characterization of a xenograft material developed from bovine cancellous bone

Theme: Evaluating Our Teaching, Learning And Practice

PRESENTER	POSITION	TITLE
Adam L	Senior Lecturer	Dental curricula implications of Dunedin early childhood teachers' understandings of oral health
Ali HM	DClinDent	Quality evaluation of dental records and patient satisfaction following periodontal surgery
Ratnayake J	Assistant Research Fellow	A survey of general dental practitioners in New Zealand: Demographic details and practicing arrangements
Ratnayake J	Assistant Research Fellow	A survey of general dental practitioners in New Zealand: Indirect restorations and fixed prosthodontics
Senthilkumar A	Assistant Research Fellow	Do they stay or do they go? Practising destination of current students and past dental graduates in New Zealand

For more information on the SJWRI and our research, please visit us online:

[otago.ac.nz/sjwri](https://www.otago.ac.nz/sjwri)



Sir John Walsh Research Institute
Advancing oral health



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