DENTALLIANCE

IADR 2024 Presentations by DentAlliance Members

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King's College London, Oral & Craniofacial Sciences

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Presenter Name	Attending PI Name	Presentation Title	Presentation Type	Presentation/ Poster #/ Session ID	Presentation Date	Presentation Time	Presentation Venue
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Stephen Challacombe

Symposium

Symposium Chair

Session Title: Making an international impact in biomedical research – the life of John Greenspan

Date & Time: 15th March 2024, 2-3.30pm

Location: Room 292

Professor John S. Greenspan died on March 31, 2023. He was a renowned and accomplished academic, dentist/scientist, pathologist, and administrator who made sustained and significant international impacts on numerous fields over half a century. John was arguably best known for his work with his wife, Dr. Deborah Greenspan, on the oral aspects of AIDS and the role of viruses in oral epithelial and salivary gland lesions. He had a lifelong interest in Sjögren's disease, culminating in the leadership of the Sjögren's International Collaborative Clinical Alliance. This symposium attempts not only to honour his contributions to oral science but to analyse advances in selected fields of activity which were the result of his involvement and to give these as examples to dental, oral and craniofacial scientists of how to leave a scientific legacy. The international impact of work in AIDS, SICCA, global oral health as well as the importance of leadership and mentoring will be discussed. Throughout these examples, the journey from basic to clinical science and the translation of findings into clinical activity will be emphasised. John Greenspan leaves a very special legacy based on example and scientific curiosity, and his work has not only made a lasting impact on his colleagues but also translated to abiding benefit for patients.

Jonathan San Diego

Symposium

Symposium Chair and Presenter

Session Title: Virtual Reality and Haptics Simulation in Enhancing Learning Clinical Competence

Date & Time: 16 March 2024, 2-3.30pm

Location: Room 295

Presentation Title: Transitioning learning with different dental AR, VR, Analogue Models and its effect on mental models

Most of the research in dental simulation with VR, haptics and digital technologies has been focused on the design of learning environments and their effectiveness in teaching clinical skills. The incorporation of different digital technologies in simulation is playing a more crucial role than before, in offering a dental education programme that complements the provision of holistic patient care. Simulation must also deliver dentistry and oral care education in safe and innovative learning environments that are digital and sustainable. New digital approaches to teaching use multifarious range of innovative technologies, blending virtual and augmented, and physical models and real patient scans. The design features are expected to complement skills applied to develop their clinical competence with intra and inter professionalism, communication, and collaboration.

However, limited evidence is known on how these new approaches influence new digital literacies in the context of dentistry and how this will affect learners' cognitive development as they transfer learning from one context of reality to another (virtual to analogue to patient). With contributions from the industry panel and the audience, and the speakers reporting the progress and research outcomes in learning and teaching with simulation, there will be discussions on the specified symposium objectives below.

Rupert Austin

Symposium

Symposium Chair

Session Title: Virtual Reality and Haptics Simulation in Enhancing Learning Clinical Competence

Date & Time: 16th March 2024, 2-3.30pm

Location: Room 295

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Jennifer E. Gallagher

Symposium

Presentation Title: Association Between Dental Visiting Patterns and Oral Health: A Systematic Review

Objectives: To systematically identify, appraise and synthesise longitudinal studies containing evidence on the association between dental visiting patterns and oral health outcomes throughout an individual's life course.

Methods: An electronic search was performed for longitudinal studies containing evidence on the association between patterns of dental attendance and oral health up to March 2023 in MEDLINE, Embase, Scopus, Web of Science and CINAHL. The quality of included studies was assessed using relevant Newcastle-Ottawa Scales. The findings were narratively synthesised according to oral health indicators.

Results : Eleven longitudinal studies were identified for the review, mainly from high income countries. These studies differ in study populations, categorisation of dental visiting patterns, oral health measures and number of confounders adjusted for in the analysis; therefore, conducting a meta-analysis was not deemed appropriate. Oral health indicators were classified as clinical and self-reported outcomes. Moderate to high quality studies revealed that regular dental attendance was associated with lower levels of dental caries experience and major tooth loss, as well as better oral health-related quality of life and self-rated oral health status. Inconsistent findings were observed for decayed teeth, and no significant association was found for periodontal conditions.

Conclusions: Our findings suggest an association between dental visiting patterns and key aspects of normative and perceived oral health. Further research is needed to explore the perception and decision-making associated with dental visiting patterns and the care received across a range of country income levels.

Symposium

Presentation Title: Oral Health System Strengthening in Fragile and Conflict-affected States: Systematic Review

Objective: To systematically identify, appraise and synthesise the evidence on oral health system strengthening in fragile and conflict-affected states.

Methods: A systematic review of published and grey literature was conducted across Ovid MEDLINE, EMBASE, Global Health, Scopus, Web of Science and key international organisations databases. One reviewer conducted the initial title and abstract screening as per the eligibility criteria and two reviewers conducted full text screening independently. Quality appraisal of the papers was conducted using relevant Joanna Briggs Institute critical appraisal tools. The findings were narratively synthesised in line with the Lancet's high-quality health system framework.

Results: Of the 21,570 identified papers, 65 were screened in full, and 23 studies from 12 fragile and conflict-affected states were included in the review, comprising case study reports, service evaluations and research papers of varied methodological quality. The documented effects of conflict, political crisis, pandemics, and other natural disasters on the oral health system included the loss of a trained and qualified workforce, physical infrastructure, and other resources, as well as governance systems. Initiatives to strengthen the oral health system focused on workforce included development and career enhancement (dentists, auxiliary personnel); education (facilities, programmes) and governance processes (standardisation, quality assurance). Integration of oral health within the national health system and emergency response, community outreach programmes, mobile dental services, tele-dentistry, and effective governance including financing systems have been reported to facilitate processes of care and enhance the quality impacts. Local and international collaborative action involving monitoring and evaluation was highlighted as a key health system strengthening strategy ensuring equitable distribution of responsibilities and resources.

Conclusions: Whilst there is limited evidence on oral health system strengthening in fragile and conflict-affected situations, our findings suggest the need of integrated action including mobilising local resources and engaging various stakeholders equitably. Hence, further research is required to explore a comprehensive strategy for strengthening oral health system.

Symposium

Symposium Chair

Session Title: Partnership in Health Systems Strengthening

Date & Time: 13th March 2024, 8.30-10am

Location: Room 295

The recent World Health Organization (WHO) Global Strategy and Action Plan for oral health propose taking a public health approach to improving oral health and access to essential dental care. This includes promoting a range of health systems strengthening initiatives, from integration of oral health into primary health care, to developing innovative workforce models. Nations are encouraged to develop such initiatives to meet population oral health needs which must address inequalities.

Global partnership working, in a post-colonial world, is under scrutiny. Yet it is vitally important to achieve global goals, learning from and supporting one another in an equitable manner as we draw on and contribute to research evidence. It is therefore timely for IADR, for our global research organization, to identify clear priorities and principles for partnership working in support of health systems strengthening and its evaluation. All the presenters in this symposium have experience of partnership working, including with one another. The aim of this symposium is to consider partnership in support of health systems strengthening [HSS], including in fragile and conflict-affected states. First, principles of healthy partnership working in support of health and health systems strengthening will be examined. Second, case studies, taking a public health approach to workforce planning using epidemiology will be presented from Rwanda and Sierra Leone. Third, an initiative to integrate oral health into primary care will be considered.

At its foundation health systems strengthening, in line with the Kruk et al Lancet Framework (2017), includes consideration of population *needs*, *governance, platforms, workforce* and *tools* in support of building an *equitable, resilient* and *efficient h*ealth system. King's College London and Harvard School of Dental Medicine have been involved in global leadership development. They also work in partnership with lower-income countries to support building a contemporary health workforce. King's and the University of Pretoria are working in partnership to develop leadership and research.

This symposium will draw on experiences of organisational partnerships in transformational workforce developments in sub-Saharan Africa. This includes shaping workforce education including a dental school in Rwanda, and training of dental therapists in Sierra Leone informed by epidemiological research. Going beyond the traditional dental programmes, community health workers (CHWs) for sub-Saharan Africa will be considered. They serve on the front lines as the critical first point of contact into the formal health care system, particularly for the prevention and control of non-communicable disease. They serve in improving access and quality of care by incorporating oral health into their basic packages of essential health services. It explores a collaborative case study between the WHO Regional Office for Africa and

Harvard School of Dental Medicine. The case introduces participants to the process of developing the first oral health e-training curriculum for 60,000 CHWs in Africa, from conceptualization to the curriculum pilot launch in Kenya and Senegal.

It is anticipated that this symposium will lead to a position paper on Partnership in Health Systems Strengthening.

Symposium

Session Title: Mentorship Strategies in Academic Dentistry Through Dianne Rekow's Legacy

Presentation Title: Lessons I learned from Dianne; mentorship – Is it an individual or an institutional responsibility?

Mentoring, sponsoring and coaching are different forms of support that early career researchers may need from their senior colleagues, but the difference between them is not clear to many. Effective mentoring has been shown to be one of the most influential factors for the success of female faculty. Dianne Rekow was the 88th president of the IADR (2011-2012) and the 35th president of the AADR (2006-2007). She was a board member for many dental associations in academia and industry, the former dean of the King's College London Dental Institute and a remarkably inspiring mentor to many women in dentistry. With this symposium, the Women in Science Network will connect successful female academicians who have been mentored by Dr. Rekow to discuss how her mentoring style and inspiration has affected their careers and their mentoring of graduate students and junior faculty. Speakers will also discuss how mentoring has affected their research trajectory and present the status of their current research endeavors, aiming at developing a network of support for junior faculty. This workshop will be tailored to post-docs, recent graduates and junior faculty who want to learn more about the benefits of effective mentorship for mentor and mentee.

Attending PIs (KCL)

Stephen Challacombe 	**Saoirse O'Toole** 	**Wael Sabbah** 
Sveta Zaric 	**Abigail S. Tucker** 	**Jonathan San Diego** 
Rupert Austin 	**David Bartlett** 	**Jennifer E. Gallagher** 

National University of Singapore

Faculty of Dentistry

List of Oral and Poster (NUS)

Presenter Name	Attending PI Name	Presentation Title	Presentation Type	Presentation/ Poster #/ Session ID	Presentation Date	Presentation Time	Presentation Venue
Nileshkumar Dubey	Nileshkumar Dubey	3D Printable PEGylated AuNPs Bioink for Dental Tissue Regeneration	Oral	175	13-Mar	2:45 PM - 3.00 PM	Room 288
Jacob Chew	Jacob Chew	Quantifying Periodontitis-associated Microbiome Dysbiosis Across Oral Sites Using Integrated Data	Poster	647	14-Mar	11:00 AM – 12:15 PM	Hall J (CC)
Keerthika Natarajan	Gao Xiaoli	Assessing Reliability and Validity of Oral Frailty Index-8 in Singapore	Poster	371	14-Mar	11:00 AM – 12:15 PM	Hall J (CC)
Tan Hui Xuan Sharon	Gao Xiaoli	Mediation Effect Of Dental Caries Between Parental LOC And OHRQOL	Poster	377	14-Mar	11:00 AM – 12:15 PM	Hall J (CC)
Priti Pragati Rath	Vinicius Rosa	Polymer-Polysaccharide Blended Nanofibres as a Drug Delivery Device	Oral	836	14-Mar	3:00 PM – 3:15 PM	Room 275 (CC)
Charlene Goh	Charlene Goh	Interaction of the Oral Microbiome and Dietary Nitrate Intake on Cardiometabolic Benefits: Results from ORIGINS	Poster	895	14-Mar	3:45 PM – 5:00 PM	Hall J (CC)
Lin Yu-Tong, Ruby	Nileshkumar Dubey	3D Bioprinting of Complex Scaffold with α-Mangostin for Bone Regeneration	Poster	963	14-Mar	3:45 PM – 5:00 PM	Hall J (CC)
Yu Baiqing	Vinicius Rosa	Amylose/amylopectin patch for intraoral release of mucoadhesive valsartan from dentures	Poster	952	14-Mar	3:45 PM – 5:00 PM	Hall J (CC)
Varuni Arora	Nileshkumar Dubey	Nanofibrous Polycaprolactone-Nitazoxanide Membrane: A Potential Solution for Periodontitis	Poster	962	14-Mar	3:45 PM – 5:00 PM	Hall J (CC)
Yang Luming	NA	*Limosilactobacillus reuteri* Modulates *Fusobacterium nucleatum* Biofilm Formation and Immune Response	Poster	1564	15-Mar	11:00 AM – 12:15 PM	Hall J (CC)
Vinicius Rosa	Vinicius Rosa	Adding "Bio" to Biomaterials? The Essentials of Properties and Testing	Lunch & Learning	NA	15-Mar	12:30 PM – 1:45 PM	Room 383, 384, 385

Gopu Sriram

Symposium

Session Chair

Session Title: Microphysiological Modeling of Inflammation in Pulp and Periodontal Disease

Date & Time: 13 March 2024, 8:30 AM – 10:00 AM

Location: Room 297

Dental and oral health is intricately connected to overall well-being, and understanding the complex mechanisms underlying diseases like pulpitis and periodontitis is of paramount importance. Inflammation plays a central role in the pathogenesis of these conditions, but traditional research approaches often fall short in elucidating the dynamic interplay of factors involved.

This symposium aims to bridge this knowledge gap by exploring cutting-edge techniques in microphysiological modeling. Some of the examples include the use of 3D organotypic culture, organoids, advanced biomaterials, 3D bioprinting, microfluidic organ-on-a-chip systems, bioreactors, and high-throughput screening. These emerging technologies offer a biomimetic representation of the complex biological processes at play in pulp and periodontal tissues, shedding light on the mechanisms underlying inflammation-driven diseases.

Symposium

Session Chair & Presenter

Session Title: 3D Microphysiological Systems for Dental, Oral, and Craniofacial Diseases

Date & Time: 16 March, 8:30 AM – 10:00 AM

Location: Room 292

Presentation Title: Understanding Pulp Vasculogenesis and Modelling Pulpitis using Microvascularized Dental Pulp-on-Chip

3D micro physiological systems are in vitro platforms, which are being utilized as preclinical models and would advance drug development and personalized medicine. Special emphasis of this symposium will be on organs-on-a-chips, which are 3D in vitro preclinical micro physiological systems fabricated with microchip manufacturing methods that contain continuously perfused chambers inhabited by living cells arranged to simulate tissue- and organ-level physiology. These devices model the key functions of organ replicating multicellular architectures, tissue-tissue interfaces, physicochemical microenvironments, and liquid perfusion producing levels of tissue and organ functionality not possible with conventional 2D or 3D culture systems. Microfluidic devices also enable high-resolution, real-time imaging and in-vitro analysis of biochemical, genetic, and metabolic activities of living cells in a functional tissue and organ context, making them a very useful platform to test drugs and other materials.

These features of microfluidic organ-on-chip systems have enabled the reconstruction of native physiology of human tissues and the complex interactions between cells, matrix, microbiome and/or external environment. This has led to an exponential increase in the application of organ-on-chip systems across various organ systems in the body. In the last 5 years, these next-generation tools have gained traction in dental and craniofacial research. Some examples include skin-on-chip, tooth-on-chip, oral mucosa-on-chip, salivary tissue-on-chip and bone-on-chip. Eventually, these micro-physiological systems aim to reduce animal testing and may be used to develop or select therapeutics that are personalized for individual patients, distinct genetic subpopulations or even subgroups with particular disease comorbidities, which could revolutionize clinical trials design.

This symposium aims to present the applications of these next-generation microfluidic and organ-on-chip technologies in dental, oral and craniofacial research.

Nileshkumar Dubey

Symposium

Organizer

Session Title: Advancing Biomaterials and Technologies in Dentistry: From Idea to Clinic

14 March 2024, 8:00 AM – 9:30 AM

Location: Room 292

The development and application of innovative technologies and biomaterials have been pivotal in transforming theoretical concepts into practical dental clinical solutions. The last decade has witnessed the emergence of innovative technologies particularly, 3D printing and organoids, which provide a profound understanding of disease processes, and regeneration mechanisms and are aimed toward the development of more personalized treatment offering a glimpse into personalized dentistry and precision treatments. Similarly, biomaterial research is at the forefront of advancing the dental field by significantly improving treatment outcomes, patient satisfaction, and the long-term oral health of individuals. In addition, microbial biomarker analysis has great potential to offer potential prognostic insights in predicting disease susceptibility, progression, and outcome of periodontal therapy. With a focus on bridging the gap between innovation and clinical practice, this session will discuss the advances in biomaterials, technologies, and biomarkers that hold the potential to shape the future of dentistry.

Symposium

Session Title: Advancing Dentistry Through Tissue Engineering and 3D Printing

16 March, 2:00 PM – 3:30 PM

Location: 292

Presentation Title: Biomaterial Inks and Bioinks for 3D Printing Bone Substitutes

In an era of dental healthcare characterized by personalized medicine, we envision a future where dental, oral, and cranio-maxillofacial treatments are meticulously tailored to the unique needs of each patient. Realizing this vision necessitates the development of cutting-edge technology distinguished by heightened sensitivity, specificity, tunability, and adaptability. While the full potential of this technology is yet to be realized, recent strides in three-dimensional (3D) printing and tissue engineering offer promising prospects for on-demand, patient-specific oral and dental treatments.

Our symposium seeks to present the latest breakthroughs in 3-D printing that are directly pertinent to the fields of tissue engineering and regenerative dentistry, where the boundaries of dental, oral, and cranio-maxillofacial treatments are redefined for the benefit of individual patients. Our focus spans both soft tissue (oral mucosa) and hard tissue (bone) engineering within the oral cavity.

Sayaka Tada

Symposium

Session Title: Oral Health Interventions in Home-dwelling Frail or Care-dependent Elderly

Date & Time: 13 March 2024, 3:15 PM – 4:45 PM

Location: Room 297

Presentation Title: Oral Healthcare Integration in Elderly Care: An Asian Perspective

My presentation delves into the integration of oral healthcare in elderly care in Japan and in Singapore. Japan, an advanced-aging society, has been offering an affordable domiciliary dental service under universal health coverage, exemplifying a pioneering approach. The structure of their system and its potential benefits offer valuable insights into addressing the oral healthcare needs of care-dependent older adults. However, despite its advantages, Japan's model confronts a low utilization rate among care-dependent older adults, underscoring barriers beyond mere affordability and availability. In contrast, Singapore, facing rapid aging in Southeast Asia, is initiating the development of formal oral healthcare services for older adults in long-term care facilities. Recent investigations have begun to uncover the multifaceted barriers to service development. The contrast between Japan's pioneering but underutilized program and Singapore's formative efforts sheds light on the challenges of delivering oral healthcare to care-dependent older adults. The presentation advocates for a reevaluation of strategies in high-income countries to fulfill the oral healthcare needs of care-dependent older adults. It calls for adaptable solutions that address not only service provision but also the cultural, economic, and systemic obstacles to accessing and utilizing oral healthcare services for care-dependent older adults.

Gao Xiaoli

Symposium

Session Title: Designing a Nutrition Curriculum for Oral and Systemic Health

Date & Time: 13 March 2024, 3:15PM – 4:45 PM

Location: Room 292

Presentation Title: Curricula Implementation, Research, and Change Agenda

The negative impact of poor diet and altered nutrition status from underweight to obesity on the population's systemic and oral health continues to be demonstrated. Halting the rise of childhood overweight and obesity epidemic is one of the WHO 2025 Global Nutrition Targets for children under 5. Oral health professionals' roles in diet evaluation and counseling for oral disease prevention and intervention are increasingly important. However, the average number of training hours that medical students receive in the USA and UK has been reported to be an average of 11, which is presumed to be significantly lower in dentistry. There is a need, therefore, to create an oral healthcare curriculum that defines appropriate training and exposure of oral healthcare professionals to the impact of diet, nutrition, and obesity on systemic and oral health. This requires an evidence-based approach to the knowledge of the associations of diet and nutrition on oral and systemic health, along with goals on how to plan a curriculum in the context of an oral healthcare team that can holistically care for patients' oral and systemic health. In addition, there is a need to educate dental students and faculty about diet and nutrition for themselves as well as their patient populations so they can apply the concepts both personally and professionally.

Jacob Chew Ren Jie

Symposium

Session Title: Advancing Biomaterials and Technologies in Dentistry: From Idea to Clinic

Date & Time: 14 March 2024, 8:00 AM – 9:30 AM

Location: Room 292

Presentation Title: Reinventing microbial biomarkers for clinical periodontics

Accurate prognostic tools enable the identification of susceptible patients and the prediction of treatment response. Such information is crucial for early interceptive treatment and is the cornerstone of personalized periodontics. Current clinical parameters lack this crucial insight, necessitating the development of novel prognostic biomarkers. Given the pivotal role of dysbiotic biofilm in periodontitis pathogenesis, alterations in subgingival biofilm composition and phenotype may mirror subclinical activities in periodontal pockets, offering additional prognostic value. This presentation will discuss the clinical applications of microbial-derived biomarkers as a periodontal prognostic tool for predicting treatment response and susceptibility to relapse.

Vinicius Rosa

Lunch & Learning Session, Table #9

Date & Time: 15 March 2024, 12:30 PM – 1:45 PM

Location: Room 383, 384, 385

Presentation Title: Adding "Bio" to Biomaterials? The Essentials of Properties and Testing

Precise assessment of biological properties is pivotal in biomaterials research. Neglecting the intricate interplay between biomaterials and biological systems can impede progress, hindering innovative solutions' development and making research less competitive. Addressing this gap is imperative, ensuring biomaterials are functional, biocompatible, and can promote positive responses in the biological contexts.

This session's objective is to elucidate the fundamentals of biomaterials testing concerning biological properties and their profound influence on clinical behavior. This session aims to elucidate the fundamentals of biomaterials testing and their impact on clinical behavior. The discussions will include the selection and execution of biological tests to drive the development of next-generation biomaterials capable of modulating cellular and tissue behavior.

Attending PIs (NUS)

Gopu Sriram 	**Nileshkumar Dubey** 	**Sayaka Tada** 
Gao Xiaoli 	**Charlene Goh** 	**Jacob Chew** 
Vinicius Rosa 		

THE UNIVERSITY OF MELBOURNE

University of Melbourne, Melbourne Dental School

List of Oral & Poster Presentations (UM)

Attending PI Name	Presentation Title	Presentation Type	Presentation/Poster #/Session ID	Presentation Date	Presentation Time	Presentation Venue
Nadia Kaunein	Optimizing MicroRNA Analysis for Early Oral Cancer Detection	Poster	599	14-Mar	11:00 AM - 12:15 PM	Hall J (CC)
Mihiri Slva	Barriers to optimal infant oral care: a qualitative study	Oral	352	14-Mar	8:00AM - 9:30AM	Room 270
Stephanie Shields	Causation from observation: molar incisor hypomineralisation and oral health-related quality-of-life	Poster	622	14-Mar	11:00 AM - 12:15 PM	Hall J (CC)
Neil O'Brien-Simpson	Antimicrobial materials to prevent microbial surface attachment and infection.	Poster	1079	14-Mar	3:45 PM - 5:00PM	Hall J (CC)
Michelle Mun	Association between social disadvantage and Australian paediatric antibiotic prescribing	Poster	530	14-Mar	11:00 AM - 12:15 PM	Hall J
Samantha Byrne	Self-regulated learning and preparation for a flipped classroom	Poster	1463	15-Mar	11:00 AM - 12:15 PM	Hall J (CC)
Matt Hopcraft	Factors associated with hazardous alcohol use in Australian dental practitioners.	Poster	1981	15-Mar	3:45 PM - 5:00PM	Hall J (CC)
Bree Jones	Caries Detection in Children Using 3D Models Featuring Fluorscence	Oral	46	15-Mar	1:30 PM - 3:00 PM	Room 287 (CC)
Stuart Dashper	Repeated oral inoculation with Porphyromonas gingivalis or Treponema denticola induces Alzheimer's disease like pathologies in a mouse model.	Poster	2485	16-Mar	11:00 AM - 12:15 PM	Hall J (CC)
Rita Hardiman	Motivations for student activity choices in dental anatomy	Poster	2853	16-Mar	3:45 PM - 5:00PM	Hall J (CC)
Clare McNally	Improving OSCE quality using empirical learning progressions for standard setting	Oral	2243	16-Mar	08:00 AM - 08:45 AM	Room 287 (CC)
Geoff Adams	Comparison of Supragingival Plaque Microbiome: Clear Aligners vs Fixed Appliances	Poster		16-Mar	3:45 PM - 5:00PM	Hall J (CC)
Eric Reynolds	Stabilised Delivery of SnF2 by CPP-ACP	Oral	2689	16-Mar	2:30 PM	Room 281

Bree Jones

Symposium

Session Title: AI in Dentistry, Current Tools, and Pathway From Bench to Bedside

Date & Time: 16 March 2024, 2:00 PM – 3:30 PM

Presentation Title: AI Application for Caries Diagnostics

The integration of Artificial Intelligence (AI) within dentistry is a recent and rapid development that marks a transformative leap in oral healthcare provision. AI tools promise enhanced diagnostics, predictive analyses, treatment efficiencies and improved clinical workflows. As these technologies become adopted more broadly in clinical practice, it is essential for clinicians to develop the knowledge and skills to understand their biases and limitations to be able to use them safely, ethically, and responsibly. The pathway from research to clinical implementation involves validation, ensuring regulatory compliance, and training dental professionals for seamless integration of AI into their practice.

James Fernando

Session Chair

Session Title: Cariology Research: Fluoride & Ca-based Products

Date & Time: 16 March 2024, 2:00 PM – 3:30 PM

Leanne Teoh

Symposium

Session Title: Spread the word not infection: help tackle antimicrobial resistance

Date & Time: 13 March 2024, 10:15 AM – 11:45 AM

Presentation Title: Tailoring a dental AMS program by drawing together global evidence and local insight: a worked example from Ontario, Canada

By 2050, more people are expected to die from an infection than from cancer, due to the rise of antimicrobial resistant (AMR) infections. Deaths from AMR infections are commonly due to sepsis or the spread of the infection to a vital organ or structure. When people really need antimicrobials, they really need them to work. However, AMR does not just kill. AMR is a global emergency affecting people's health and wealth, driven by unnecessary and inappropriate prescribing of antimicrobial drugs.

Dental teams are responsible for around 10% of antibiotic prescribing across human healthcare around the world. Dentists are the second highest prescribers after general practitioners/family doctors. Guidelines and training courses exist to help dental teams decide when antibiotics are necessary and appropriate, for both therapeutic and prophylactic clinical indications. Nevertheless, studies in a number of countries have found over 80% of antibiotics prescribed by dentists are not in accordance with guidelines and thus are likely to contribute to the problem of antimicrobial resistance.

COVID-19 pandemic restrictions on the provision of dental procedures highlighted the impact to the wider AMR community of restricted access to dentistry and the impact of remotely managing patients with acute dental pain or infection. As a result, the growing field of dental antibiotic stewardship has been expanding more rapidly, including from researchers outside of the dental, oral and craniofacial community.

This symposium aims to share evidence-based insight into dental AMS and suggest practical solutions for both educators and clinicians to help play their part in tackling antimicrobial resistance.

Mihiri Silva

Symposium

Session Title: Breath of Life Symposium: Integrating Oral and Systemic Health in Cystic Fibrosis Research

Location: Room 287 (CC)

Presentation Title: Integrating oral health into clinical care for CF patients - an experience from Australia

Cystic fibrosis (CF) is the most common life-limiting autosomal recessive disease in Caucasians. In CF, dysfunction of the epithelial ion channel CFTR (cystic fibrosis transmembrane conductance regulator) causes impaired mucociliary clearance, chronic bacterial airway infection and inflammation, all of which contribute to progressive obstructive lung disease and bronchiectasis, progressive lung damage and premature death. In addition to typical CF pathogens like *Staphylococcus aureus* and *Pseudomonas aeruginosa*, previous studies have shown that oral bacteria also infect the lungs in individuals with CF at high concentrations and cause airway inflammation. However, the pathogenesis of airway infection in cystic fibrosis (CF) and its relation to the oral cavity is poorly understood. For example, dental caries and gingivitis are associated with an increased abundance of pathogenic and often proinflammatory intraoral bacteria that can be aspirated, and dental biofilm microbiota can cause pneumonia, for example in mechanically ventilated patients.

Attending PIs (UM)

Bree Jones 	**Geoffrey Grant Adams** 	**James Fernando** 
Leanne Teoh 	**Matt Hopcraft** 	**Michelle Mun** 
Mihiri Silva 	**Nadia Kaunein** 	**Neil M. O'Brien-Simpson** 

Rita <u>Hardiman</u> 	**Stuart <u>Dashper</u>** 	

THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

The University of North Carolina at Chapel Hill,
Adams School of Dentistry

List of Oral & Poster Presentations (UNC)

Presenter Name	Attending PI Name	Presentation Title	Presentation Type	Presentation/ Poster #/ Session ID	Presentation Date	Presentation Time	Presentation Venue
Miguel A. Simancas-Pallares	Miguel A. Simancas-Pallares	Socio-contextual Factors Influence Children's Oral Health and Disease	Poster	631	14-Mar	11:00 AM - 12:15 PM	Hall J (CC)
Nicholas R. Reed	Joshua W. Little	Overlapping Orofacial Pain Behaviors During Persistent Low Back Pain	Poster	1136	14-Mar	3:45 PM - 5:00 PM	Hall J (CC)
Suad Shamieh	Bert Vasconcellos	Antibacterial Properties and Biofilm Attachment of Contemporary Restorative Materials	Poster	954	14-Mar	3:45 PM - 5:00 PM	Hall J (CC)
Kimon Divaris	Kimon Divaris	Keynote Address: the Pillars of Oral Epidemiology: Then and Now	Oral	1759	15-Mar	2:00 PM - 3:30 PM	Room 272
Bruce D. Gitter	Bruce D. Gitter	Impact of Pre-Class Activities on Student Performance in Pharmacology Education	Poster	1475	15-Mar	11:00 AM - 12:15 PM	Hall J (CC)
Jesse Woon	Adam Lietzan	North Carolina Dentists' perceptions towards recommending and administering a vaccine against HPV	Poster	1841	15-Mar	3:45 PM - 5:00 PM	Hall J (CC)
Christina Graves	Christina Graves	Cytokine Profiling During SARS-CoV-2 Infection Reveals Early Mucosal Immune Dysregulation	Oral	1328	15-Mar	8:00 AM - 9:30 AM	Room 273
Poojan Shrestha	Poojan Shrestha	Genome-wide Association Study of Primary Dentition Developmental Defects of Enamel	Poster	1815	15-Mar	3:45 PM - 5:00 PM	Hall J (CC)
Sylvette Ramos-Diaz	Apoena A. Ribeiro	Exploring the Link Between Microbiota and Caries in Hispanic Adults	Poster	2293	16-Mar	11:00 AM - 12:15 PM	Hall J (CC)
Anna Zheng	Apoena A. Ribeiro	Impact of Viral Infections on Oral Health Outcomes: Bibliometric Analysis	Poster	2553	16-Mar	11:00 AM - 12:15 PM	Hall J (CC)
Abhi M. Perumbedu	Apoena A. Ribeiro	Near-Infrared Imaging Efficacy to Detect Demineralized Enamel on Interproximal Surfaces.	Poster	2763	16-Mar	3:45 PM - 5:00 PM	Hall J (CC)
Elmira Hezarkhani	Apoena A. Ribeiro	Unlocking the Biological Factors in Oral Health Among Hispanic Adults	Poster	2776	16-Mar	3:45 PM - 5:00 PM	Hall J (CC)

Presenter Name	Attending PI Name	Presentation Title	Presentation Type	Presentation/ Poster #/ Session ID	Presentation Date	Presentation Time	Presentation Venue
Seth Lachacz	Apoena A. Ribeiro	Oral Health for Hispanics: Surveying the Present, Plan the Future	Poster	2777	16-Mar	3:45 PM - 5:00 PM	Hall J (CC)
Tunwarut Srimuang	Takashi Komabayashi	Removal Methods of Tricalcium Silicate Endodontic Sealer: Micro-CT Assessment Review	Poster	2614	16-Mar	11:00 AM - 12:15 PM	Hall J (CC)
Erika Rezende Silva	Laura Jacox	Influence of Surgical Correction of Jaw Disproportions on Speech	Poster	2257	16-Mar	9:15 AM to 9:30 AM	Room 275
Adam Lietzan	Adam Lietzan	Enzymatic signatures from the oral microbiome inform periodontal disease severity	Oral	2265	16-Mar	8:00 AM - 9:30 AM	Room 278
Angela Chen	Christina Graves	Acidic Stress Exacerbates Microbial Ligand-Induced Oral Epithelial Cell Inflammation	Poster	2900	16-Mar	3:45 PM - 5:00 PM	Hall J (CC)
Marta Musskopf	Marta Musskopf	Minipig Intraoral Dental Implant Model: Clinical, Radiographic and Histometric Characteristics	Poster	2880	16-Mar	3:45 PM - 5:00 PM	Hall J (CC)

Apoena de Aguiar Ribeiro, DDS, MS, PhD

Associate Professor

Division of Diagnostic Sciences (Cariology and Microbiology)

Symposium

Session Chair and Presenter

Session Title: Breath of Life: Integrating Oral and Systemic Health in Cystic Fibrosis Research

Date & Time: 13 March 2024, 8:30 AM – 10:00 AM

Presentation Title: Outside the Oral Cavity: Linking the Oral Microbiome to Respiratory Health Outcomes in CF

Location: Room 291

Cystic fibrosis (CF) is the most common life-limiting autosomal recessive disease in Caucasians. In CF, dysfunction of the epithelial ion channel CFTR (cystic fibrosis transmembrane conductance regulator) causes impaired mucociliary clearance, chronic bacterial airway infection and inflammation, all of which contribute to progressive obstructive lung disease and bronchiectasis, progressive lung damage and premature death. In addition to typical CF pathogens like *Staphylococcus aureus* and *Pseudomonas aeruginosa*, previous studies have shown that oral bacteria also infect the lungs in individuals with CF at high concentrations and cause airway inflammation. However, the pathogenesis of airway infection in cystic fibrosis (CF) and its relation to the oral cavity is poorly understood. For example, dental caries and gingivitis are associated with an increased abundance of pathogenic and often proinflammatory intraoral bacteria that can be aspirated, and dental biofilm microbiota can cause pneumonia, for example in mechanically ventilated patients. Our overall objective is to bring updated and critical information about the interrelation between Cystic Fibrosis and oral health to discuss critical knowledge gaps.

Eric T. Everett, Ph.D.

Professor
Division of Oral and Craniofacial Health Sciences
Division of Pediatric and Public Health
Director of Research Integrity, Ethics and Education
Office of the Vice Chancellor for Research

Symposium

Session Title: Publication and Clinical Research Ethics

Date & Time: 13 March 2024, 1:30 PM – 3:00 PM

Location: Room 297 (CC)

John Timothy Wright, DDS, MS

James W. Bawden Distinguished Professor

Division of Pediatric and Public Health (Pediatric Dentistry)

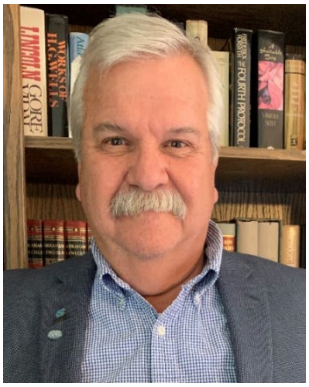
Symposium

Session Title: Publication & Plagiarism

Date & Time: 13 March 2024, 1:30 PM – 3:00 PM

Location: Room 297

Attending PIs (UNC)

Apoena de Aguiar Ribeiro 	**Miguel A. Simancas-Pallares** 	**Takashi Komabayashi** 
Laura Jacox 	**Eric T. Everett** 	**Joshua W. Little** 
Adam Lietzan 	**Christina Graves** 	**Bert Vasconcellos** 

Poojan Shrestha 	**Jane Weintraub** 	**Marta Musskopf** 
Bruce D. Gitter 	**John Timothy Wright**