



Bringing you the latest happenings at the Faculty of Dentistry

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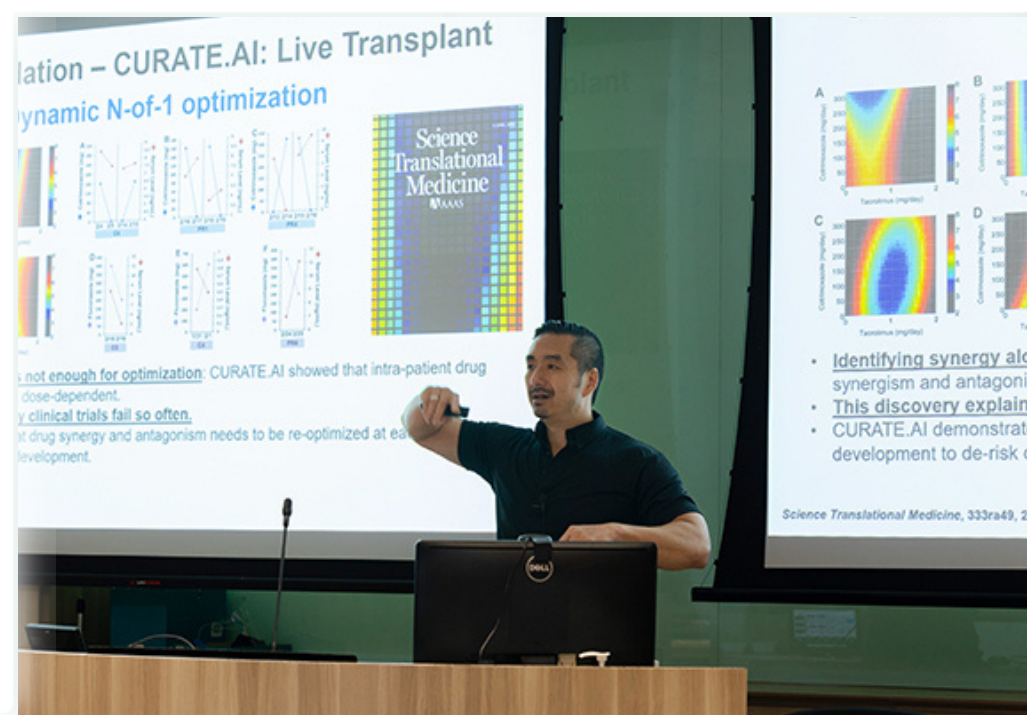
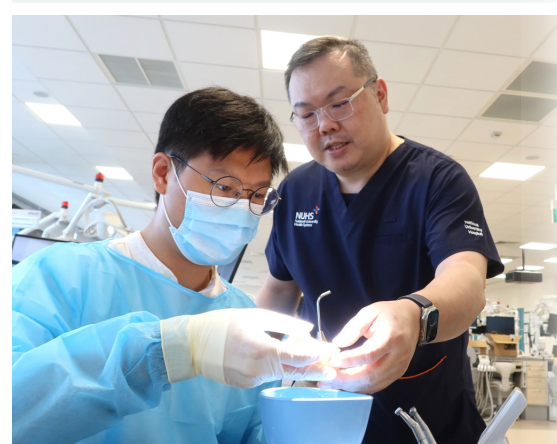
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Dentistry Embraces 4th Industrial Revolution



The 4th Industrial Revolution is set to revolutionise dentistry, particularly in the realm of oral and maxillofacial surgery. On 2 March 2023, Associate Professor Raymond Wong, Director of Discipline of Oral and Maxillofacial Surgery, conducted a workshop for around 40 NUS Dentistry alumni to discover the profound impact of technological advancements like 3D printing, augmented reality (AR), gene expression testing and health record digitalisation on patient care and treatment. The session left the attendees inspired as they realised how adopting these cutting-edge technologies can significantly transform dental practices and improve patient lives.

“The talk provided useful insights into how advanced technologies like artificial intelligence (AI), 3D printing, and AR are transforming dentistry. Specifically, it enlightened me on how digital techniques such as AR-assisted surgical planning, AI-powered diagnosis, and treatment planning could be applied in oral and maxillofacial surgery and kept me updated on the latest technological developments so I could improve patient care as a general dentist,” said Dr Tristan Peh.

Discover the World of Dentistry: NUS Open House 2023

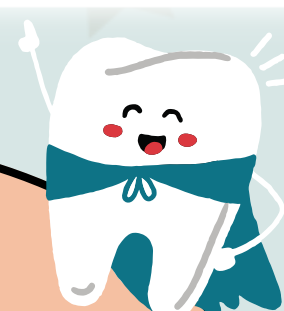
On 4 March 2023, NUS Dentistry opened its doors and introduced attendees to the friendly faculty members and provided valuable insights into the Bachelor of Dental Surgery programme via demonstrations, talks and exhibitions.

Congratulations to third-year students, Wang Kang Rui and Ng Kiang Wu, who tied for the top spot in the "NUS Open House Best-Captioned Photo Contest" organised by the Faculty. Second-year student, Xie Jinghan won the most-liked photo.



Watch the preview [here](#).

DID YOU KNOW?



On 23 March 2023, it was announced that the National University of Singapore (NUS) surged from 51st – 70th to an impressive 31st position in the QS World University Rankings 2023 for the subject 'Dentistry'.

Tuesday, March 21, 2023

Local start-up launches animal-free cosmetics testing kit

Automated platform mimics flow of blood under skin to evaluate safety and efficacy

Josiah Teo

Local biotech start-up Revivo BioSystems has developed a cosmetics testing platform which mimics the flow of blood under the skin, paving the way for more companies to move away from animal testing. The in-vitro platform, launched on March 2, makes the company one of the front runners in the emerging field of "organ-on-chip" technologies, which seeks to model - on small chips made of plastic, glass or silicon - how human organs work. These could make testing for drugs, foods and cosmetics in the lab more accurate and efficient. In-vitro tests are performed in laboratories outside of human or animal bodies. Revivo BioSystems' platform has two devices that work together to evaluate the safety and efficacy of cosmetic products. The first, known as the Revex chip, is a single-use plastic chip that has small channels that allow liquids to flow through. It has three chambers linked to these micro-channels, where human skin - taken, for example, from biopsies - can be placed and samples of the cosmetic product can be applied. Synthetic substitutes for skin, created in laboratories, can also be used. Four of these Revex chips can be put in a ReleGO collection device. As a liquid simulating human blood is pumped through these channels at body temperature (37 deg C), substances from the cosmetic product which have per-

meated through the skin sample and other proteins secreted by the skin cells dissolve in the fluid. The fluid, and the substances it carries, is collected at preset time intervals. Its contents are analysed to show how the cosmetic product's ingredients have interacted with the skin over time, to determine if the item is safe, or if it stands up to marketing claims. Dr Massimo Alberti, chief executive and founder of Revivo BioSystems, said its dynamic platform is more accurate than traditional static cosmetic tests, which do not simulate the continuous flow of blood under the skin and can determine only the amount of permeated substances at a single point in time. These static tests usually involve adding a test chemical to a reconstructed piece of human skin (made from cell cultures) that has the cosmetic product applied over it. As the chemical interacts with the skin, biological reactions occur and the substances formed can be analysed to determine if the skin reacted to the product in any way. Compared with other static systems which provide a very simplistic view of what is going on in the skin, our system allows us to look, over time, at what actually happens to the skin as it reacts to the cosmetic product," said Dr Alberti. Because the ReleGO collector is fully automated, the company said its platform reduces the man-hours needed to run in-vitro tests by up to 20 times. It added that other cosmetic tests, such as those involving human volunteers where each is given



(From left) Revivo BioSystems' chief business officer Bert Grobben, scientific advisers Sriram Gopu and Zhiping Wang, and chief executive Massimo Alberti revealing the firm's ReleGO collection device at an event at Star Vista on March 2. Its technology is already patented in the US, Europe, China and Singapore. ST PHOTO: GAVIN FOO



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HIGHER ACCURACY
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DR MASSIMO ALBERTI, chief executive and founder of Revivo BioSystems, on how its dynamic platform is more accurate than traditional static cosmetic tests.

on a small dose of the product, still need to be performed. Though these regulations include the need to replace the use of animals by alternative methods as far as possible, reduce the numbers of animals used to an unavoidable minimum, and refine any procedures necessarily used to minimise the impact on animals, opponents argue that it is still cruel and immoral to subject animals to suffering just so that cosmetic products can be sold. Revivo BioSystems' technology is already patented in the US, Europe, China and Singapore. One of its first customers is specialty chemicals giant Evonik Industries, which has invested in the company and intends to use its platform to test its beauty and personal care products. Evonik's chemicals are used in cosmetic products such as make-up, skin cleansers and skin creams. Said Ms Shirley Qi, Evonik's president for South-east Asia, Australia and New Zealand: "Revivo BioSystems' kit will allow us to perform new dynamic testing methods. The automation takes human error out of the sampling, and provides a cost-effective way of carrying out

Restoring Smiles: The Transformative Workshop Series

Held over two days from 28 to 29 March 2023, the Restorative Workshop Series 2 is a SkillsFuture-funded series that offered participants an enriching experience in the field of restorative dentistry. Guided by Dr Ode Wataru, Dr Christopher Quek, Dr Frank Lee and Dr Wendy Wang, attendees gained valuable insights through live demonstrations, interactive Q&A sessions and hands-on practice in the simulation lab, enhancing their expertise and skills in restoring teeth from apex to crown.

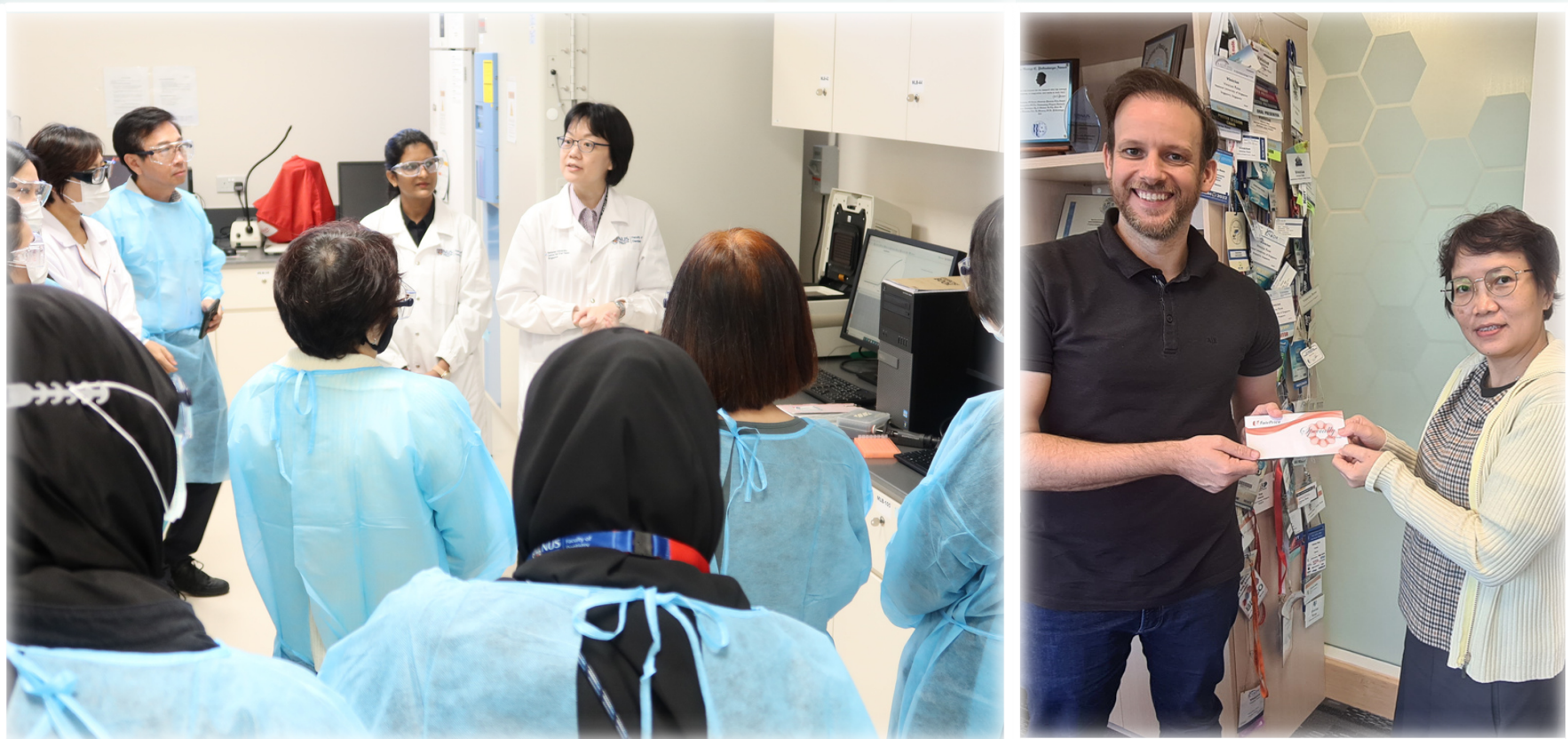
"As a well-organised and concise course, this workshop provided the typically busy clinician with a relevant refresher and updates on various operative techniques with different brands of materials in one setting. I am especially grateful to learn more about up-to-date training methods at the Faculty," one of the participants, Dr Goh shared.

Revolutionary Animal-Free Testing Advancement

Dr Sriram Gopu received accolades for contributing to a groundbreaking Singapore-based startup that developed an animal-free cosmetic testing kit. The patented in-vitro platform, crafted by Revivo BioSystems, accurately mimics the flow of blood under the skin, offering a more efficient and cruelty-free alternative for drug, food and cosmetic testing.



Discovering Innovations: Research Lab Open House



On 8 March 2023, the doors of level 11 research laboratories swung open to all staff of the Faculty and NUCOHS.

Guided by enthusiastic researchers, participants embarked on a journey through cutting-edge technologies and impactful research, culminating in a tour participant's triumphant prize victory.

Staying Ahead of the Curve: NUS Dentistry Offers Advanced Geriatric Dental Training for Future Dentists

To address the rising demand for dental care among the ageing population in Singapore, NUS Dentistry offers students experiential learning, equipping them with the skills needed to provide optimal dental care to seniors. The undergraduate curriculum teaches geriatric dentistry by extending beyond traditional didactic teaching, emphasising experiential learning to foster a deeper understanding of seniors' needs. One notable example is the "Grow Old with Me" workshop, where third-year students engage in empathy-building simulation activities, gaining essential skills like assisting patients with walking aids and transferring dependent seniors from wheelchairs to dental chairs. These hands-on experiences, along with lectures and tutorials, complement their clinical training, enabling them to provide thoughtful dental care at nursing homes under the guidance of clinical supervisors.

At the postgraduate level, NUS Dentistry has been running the two-year Graduate Diploma in Geriatric Dentistry (GDGD) programme since 2019. Through training in clinical and nursing home settings, postgraduates enhance their expertise in managing complex dental issues for seniors in the community. On 3 April 2023, National University Centre for Oral Health, Singapore, opened a dental clinic at Alexandra Hospital offering advanced training in Geriatric Dentistry. With the launch of the clinic at Alexandra Hospital, students enrolled in the GDGD program can now benefit from increased hands-on training to improve dental health and overall well-being among the elderly in the future.

Senior Parliamentary Secretary for Health, Madam Rahayu Mahzam who graced the official opening of the clinic shared that, "Through this new dental clinic, the Faculty will be able to provide enhanced clinical training opportunities for qualified dentists pursuing the graduate diploma. In addition to postgraduate training, the Faculty also incorporates the teaching of geriatric dentistry in its undergraduate curriculum. This ensures that newly qualified dentists are able to competently manage senior patients."





A Step Towards Better Oral Health in Children

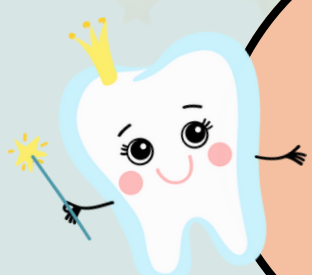
On 15 April 2023, nearly 20 participants gathered for the "Expanding Your Practice: Everyday Paediatric Dentistry Made Easy" workshop organised by DentAlliance – a collaboration comprising four prestigious dental schools - The University of North Carolina at Chapel Hill's Adams School of Dentistry; King's College London's Faculty of Dentistry, Oral & Craniofacial Sciences; The University of Melbourne's Melbourne Dental School; and the National University of Singapore's Faculty of Dentistry.

Focusing on maintaining young children's oral health and strength, attendees gained valuable insights into minimal intervention dentistry techniques, such as applying silver diamine fluoride, placing stainless steel crowns and utilising painless anaesthesia methods, all aimed at minimising pain and effectively managing caries in young patients. By prioritising the preservation of natural tooth structure and early identification and treatment of dental problems, participants expressed their satisfaction with the workshop's ability to enhance their skills in managing oral issues in children, leading to improved patient care in the future.

"The course offered very useful hands-on opportunities for me to try various techniques to treat my younger patients! The lectures were also very informative and the instructors were proactive in guiding us along the way," shared one of the participants, Dr Jonathan Chua.



DID YOU
KNOW?



Children should have their first dental visit by their first birthday or within six months of the eruption of their first tooth as recommended by The American Academy of Pediatric Dentistry

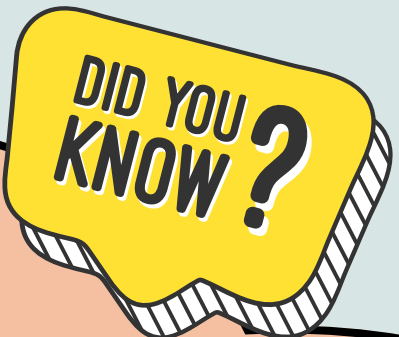
Motivational Interviewing for a Healthier Smile

The highly anticipated SkillsFuture-funded workshop, "Promoting Oral Health through Behavioural Change," successfully took place on 27 May 2023. Led by experts, Associate Professor Wong Mun Loke, Associate Professor Gao Xiaoli, and Mdm Hor Chuen Yee, the workshop explored the effectiveness of Motivational Interviewing (MI) in encouraging patients to adopt sustainable behavioural and lifestyle modifications for better oral health. Attendees left the workshop inspired and equipped with valuable skills to better manage patient's oral health.



Celebrating Success at IADR General Session and Exhibition in Bogota, Colombia

During the four-day IADR General Session and Exhibition held in Bogota, Colombia from 21 to 24 June 2023, our faculty members, research staff, and students showcased their remarkable achievements in research areas such as microfluidics, regenerative dental medicine and tissue engineering. We extend our heartfelt congratulations to our students, Mr Mishra Apurva and Ms Clarice Sabino, for their exceptional papers, which earned them the prestigious IADR Kulzer Travel Awards.



In July 2023, Associate Professor Vinicius Rosa was appointed the President of the International Association for Dental Research (IADR) Dental Materials Group.

Freshmen Unite at Freshmen Orientation Programme 2023

The Freshmen Orientation Programme (FOP) held from 26 to 28 June 2023 was a resounding success. Organised by the Freshmen Orientation Committee, the three-day camp created an unforgettable experience for our first-years!

Centred around the theme, Spotify!, the programme was packed with indoor challenges and outdoor adventures, offering an exciting opportunity for freshmen to familiarise themselves with the campus, forge lasting connections with fellow students and create unforgettable memories along the way.

Freshie, James Pai Gunawan said, "I am thrilled to have this opportunity to connect with my peers and seniors. I walk away from FOP with a sense of kinship and determination to excel and contribute at NUS Dentistry."

View programme preview [here](#).



Revolutionising Dental Health: Exploring the Future of Regenerative Endodontics

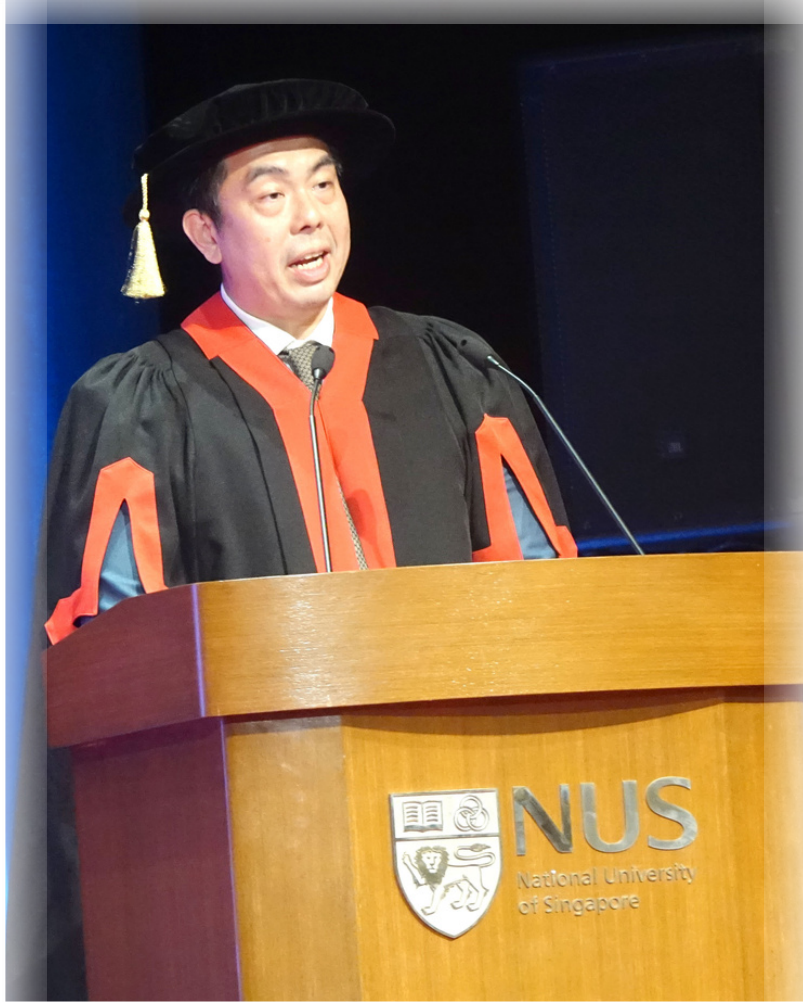
On 5 July 2023, a workshop titled "Dental Pulp Tissue Engineering: The Future of Regenerative Endodontics" took place at the NUS Faculty of Dentistry. Presented by renowned expert Professor Jacques Eduardo Nor from the University of Michigan, School of Dentistry, the workshop aimed to highlight the significant advancements in regenerative medicine and its potential for treating dental diseases and restoring oral health. Around 30 participants also gained valuable insights into the dynamic application of dental pulp engineering in regenerative endodontics.



"Prof Nor made a complex subject like tissue engineering easy to understand. The talk provided useful insights on how dental pulp tissue engineering could transform endodontics treatment and evolve it towards a more biologic-oriented regime in the future. His presentation, which shed light on the possible clinical applications as well as the challenges of dental pulp tissue engineering, was inspiring and will be especially valuable to our graduate students working in the field of tissue engineering," said Adjunct Associate Professor Lim Kian Chong.

Commencement Marks the Start of an Exciting Journey

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Commencement marks the end of a chapter and the beginning of another exciting new adventure. On 8 July 2023, NUS Dentistry proudly celebrated the achievements of 107 graduates, each ready to embrace their future with enthusiasm and determination. Adjunct Associate Professor Chng Chai Kiat (left), Chief Dental Officer from the Ministry of Health, delivered an empowering speech, encouraging the graduands to never stop learning and make a positive impact on the world.



Mrs Theresa Foo, the NUS Pro-Chancellor, presented the 107 graduands with their hard-earned scrolls. After which, the stage resonated with thunderous applause and exuberant cheers, echoing the resounding achievements of each graduate as they embarked on their new journeys.

The Bachelor of Dental Surgery (BDS) valedictorian, Dr Yang Bo, Billy said, "We are grateful for many people who supported us along the way. We thank our patients for their understanding and patience. Our clinical supervisors, for imparting valuable clinical skills. Nurses, admin staff and cleaners, for providing a conducive learning environment. Lab technicians, thank you for your friendship and your incredible lab skills."

Dr Alexis Png, a BDS graduate, said, "As the reality of graduation sinks in, I can't help but think about how badly I wanted to be part of NUS Dentistry. Learning at the faculty has taught us valuable lessons and imparted critical skills that allow us to have a better understanding of all aspects of dental work. As bittersweet as it is, there's no place I'd rather be."

Dr Tan Zhi Ming Darren, who graduated with a Master of Dental Surgery (MDS), added, "MDS was a tough but rewarding journey and thanks to the guidance I received from the faculty, I have grown and matured both as an individual and as a clinician. I am also thankful for the unwavering support from my family, friends and tutors. I will look back on my residency days fondly."



Watch the highlights [here](#).

Award-Winning Study on Improving Pediatric Pulp Health



In recent years, there has been a notable focus on enhancing dental care for children, with particular attention on accurately diagnosing pulp health in baby teeth, a critical factor for successful dental treatment in the paediatric population. Dr Ishreen Kaur Dhillon was recognised for her exceptional research in this area and was awarded the prestigious 2023 American Academy of Pediatric Dentistry Graduate Student Research Award. Conducted alongside Associate Professor Catherine Hong Hsu Ling and Assistant Professor Gopu Sriram, her study aimed to shed light on the understanding of pulpal health in baby teeth, offering potential solutions to the diagnostic challenges faced by paediatric dentists.

"The 2009 American Association of Endodontists criteria were established as a standard for diagnosing pulp health in teeth, yet research on its accuracy in assessing pulpal health in young children had not been assessed conclusively. The team hopes to break new ground through our study and advance investigations on the conditions of dental pulp in primary teeth, to ultimately optimise treatment for our paediatric patients," added Dr Ishreen.



Distinguished Speaker Programme Series on Dental Diagnostic Advancements

Held at NUS and organised by the Singapore Dental Association (SDA), Professor in the Division of Diagnostic Sciences at the University of North Carolina at Chapel Hill's Adams School of Dentistry Donald Tyndall hosted a comprehensive workshop on 17 July 2023 at NUS Faculty of Dentistry. The workshop aimed to enhance participants' skills in panoramic imaging and Cone Beam Computed Tomography (CBCT) application in dentistry. The course covered topics such as improving image quality, interpreting 2D and CBCT images of the maxillofacial region, and distinguishing malignant from benign lesions in the jaws. Attendees also gained valuable insights into the key factors to consider when selecting a CBCT system, making the workshop highly relevant and applicable to dental practice worldwide.

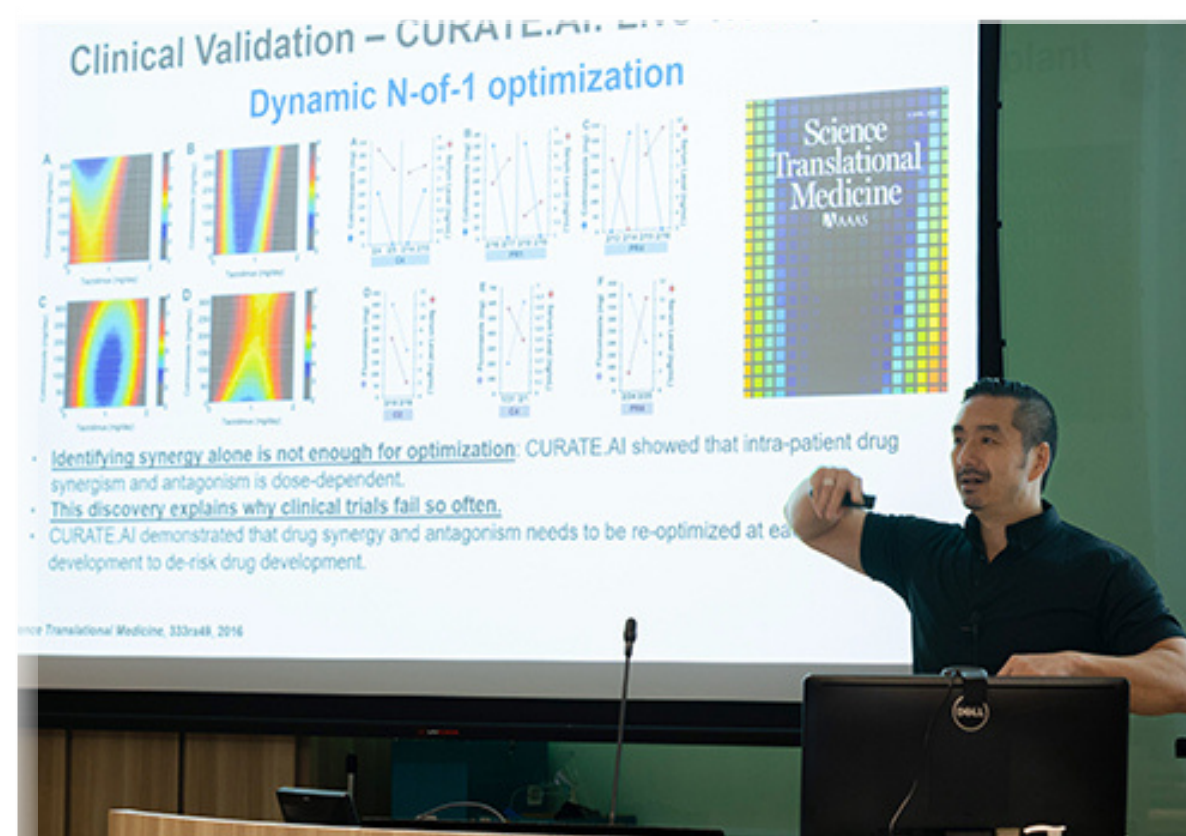
"In this workshop, we delved into the fundamentals of panoramic imaging and CBCT, empowering participants to improve image quality, master 2D and 3D interpretation and discern between benign and malignant lesions. Additionally, this course mirrors real-world dental practice, enabling immediate application of knowledge. Thank you to the organisers and participants for the warm reception," shared Dr Tyndall.



Exploring Progressive Research Fields: BLOOMS Discovery Series 2023

BLOOMS: A three-day journey into progressive research fields saw researchers from all across the world gather to explore the evolution of dental research and its potential impact on global oral and systemic health. This programme facilitated discussions on emerging research fields, including digital technology, biofabrication, and microfluidics. Held from 19 to 21 July 2023, the inaugural event featured lectures and hands-on sessions conducted by experts from the National University of Singapore (NUS), CELLINK, and REVIVO Biosystems.

Participants gained insights into the future of dentistry through the integration of tissue engineering, regeneration, microfluidics, and 3D printing, aiming to revolutionise dental practices and improve overall health outcomes. Beyond sharing ideas and information, the programme offered a holistic experience, allowing participants to immerse themselves in NUS' vibrant atmosphere, bond through casual meals and appreciate Singapore's distinct heritage during an evening cruise along the iconic Singapore River. Participants praised the programme for offering a unique platform for them to exchange knowledge and foster networking opportunities among researchers from diverse backgrounds.



"I am glad to be part of this terrific discovery series where I gained the opportunity to learn more about enhancing research and patient care to attain good outcomes. It was an absolute pleasure to also explore the state-of-the-art laboratory and clinical facilities at the NUS Faculty of Dentistry. Moving forward, I hope to utilise the knowledge I have learned here in my educational and research journey to make further impact to oral and systemic health," shared Associate Professor Umesh Kumar who oversees the Unit of Endodontics, Oral Health Sciences Centre at the Postgraduate Institute of Medical Education and Research in Chandigarh, India.



Watch the highlights [here](#).

Upcoming Events



Rag Day

12 August 2023

UTown

Get ready to embrace the spirit of camaraderie and creativity as the Year 1s join forces with Year 2s for an exhilarating Rag Day on 12 August 2023. This lively event will showcase an array of thematic floats parading through the university grounds with spectacular dance performances promising a day of festive celebrations.



Energise Your Workplace Performance

16 August 2023, 1300 - 1400 hr

Zoom

Do you want to supercharge your work day? Join the Zoom session on "Nutrition at Work - Energy Boost for Performance," where you will discover the key ingredients to fueling your productivity and achieving peak performance in the workplace. [Click here](#) to register now.



Stay fit KPop style

30 August 2023, 1300 - 1400 hr

NUCOHS, Classroom 10-05

Groove and sweat your way to fitness as the highly anticipated "KpopX Fitness" is set on 30 August 2023. Mark your calendars for an energetic and exhilarating workout session that combines the infectious beats of K-pop with dynamic exercise routines. [Click here](#) to register now.



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[Dentistry NUS](https://www.youtube.com/DentistryNUS)



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