



UNIVERSITY OF
LIVERPOOL

**SCHOOL OF
DENTISTRY**

RESEARCH



OUR RESEARCH

The School of Dentistry sits within the Institute of Life Course and Medical Sciences, in the Faculty of Health and Life Sciences. Working in such a structure allows us to collaborate, bringing a range of skills and knowledge from across the Faculty to aid in the production of high quality and diverse research. The celebrated research scientists and clinicians who work at the School of Dentistry are focused on translating their research findings to improve patient care and raise educational standards.

We're delivering outcomes that make a real impact, particularly in addressing local, oral health inequalities. By bringing together life scientists, clinical researchers, engineers, computer scientists and statisticians we create much larger data sets and deliver greater outcomes towards healthy living and ageing.



ORAL HEALTH RESEARCH GROUP

Our interdisciplinary team comprises dedicated researchers from various fields, uniting the expertise of clinical dentistry, health psychology, and biostatistics. Together, we are committed to advancing oral health research through collaborative and person-focused research, with a primary goal of enhancing health outcomes and addressing health inequalities. One of our strengths is engaging with our patients in many ways, as a group we strive to involve the local communities in our research from its inception to dissemination and implementation. Our researchers are interested of investigating and reducing health inequalities.

Research focus areas

- **Innovative Interventions for Children's Oral Health:** Our group is at the forefront of developing and evaluating innovative interventions aimed at improving children's oral health. Through cutting-edge research, we seek to identify effective strategies that positively impact oral health practices and outcomes in the paediatric population.
- **Holistic Approach to Oral Health:** Embracing a holistic perspective, we investigate the role of all members of the healthcare team in improving oral health. By understanding and optimising the collaborative efforts of various healthcare professionals, we aim to enhance the overall quality of oral HealthCare delivery.
- **general Dental Practice in Health Screening and Patient Wellbeing:** Exploring the vital role of the dental team, our research delves into health screening and initiatives to improve patient wellbeing. We aim to uncover opportunities for preventive measures, early detection, and holistic patient care within the realm of general dentistry.

Current Projects

- **The Children Growing up in Liverpool (C-GULL) Longitudinal Birth Cohort Study** aims to enhance health and address inequalities in Liverpool by investigating early life pathways to chronic diseases. The study incorporates an Oral Health Component, focusing on the development of validated tools, assessments, and datasets to understand risk factors for poor oral health and broader health outcomes in children.
- **Oral Health Parent Champion Programme Evaluation PROTECT.** Beyond CYP Transformation Programme in Cheshire and Merseyside introducing an innovative peer support and parent champion model to empower communities in Liverpool to change oral health behaviours. The programme aimed at most deprived communities. Our team has been awarded the funding to evaluate the implementation, effectiveness and sustainability of the programme.
- **Co-creating strategies and actions to tackle oral health-related stigma enacted by dental health professionals and oral health researchers:** An exploration of how adults experience oral health-related stigma and approaches to destigmatise differences in oral health. This qualitative, phenomenological study is funded by the Academy of Medical Sciences Clinical Lecturers Grant. The study involves exploring lived experiences of oral health stigma with a focus on understanding the drivers as well as experiences and consequences of oral health stigma.



**PROFESSOR
SONDOS ALBADRI**
LEAD ORAL HEALTH EXPERT





DENTAL INNOVATION RESEARCH GROUP

Our group strives to improve patient treatment outcomes by integrating biomedical science, advanced materials and dental procedures through engaging with patients, and collaborating with scientists, engineers and industry professionals.

Research focus areas

- **Development and iterative testing of clinical workflows using contextualised simulation models to improve clinical performance in dental practice.**
- **Investigate the Cell-Material interactions for regenerative procedures in laboratory, animal and clinical settings.**
- **Develop digital platforms that help dental clinicians and patients inform the decision-making process.**
- **Synthesis of evidence based practice to enhance the survival of teeth and inform clinical practice guidelines.**
- **Randomised control trials to investigate the efficacy of innovative intervention in the management of dental diseases in primary and secondary care settings.**

Current Projects

- Collaborating with SME [LightOx](#) to develop a novel treatment for patients with oral dysplasia. This is a gel-based, light-activated treatment that will be applied directly to dysplastic lesions and amenable to chairside treatment. Pre-clinical work is progressing and we aim to progress to a phase I trial by 2025.
- [Pulpotomy for the management of irreversible pulpitis in mature teeth \(PIP Trial\)](#): comprises a feasibility study, then a primary dental care, multi-centre, two-arm patient randomised control trial with an internal pilot will compare the clinical and cost-effectiveness of Full Pulpotomy (FP) to Root Canal Treatment (RCTx) in pre/molar teeth with symptoms indicative of irreversible pulpitis. A mixed-method process evaluation will complement the outcome evaluation and examine implementation issues.
- [The Endodontic Complexity Assessment Tool \(E-CAT\)](#), has been developed from two doctoral research projects undertaken at the School of Dentistry. The tool simply aims to provide a quick and easy way to assess how difficult an endodontic treatment is predicted to be. For example, a “3” outcome would indicate a high risk and complexity where a 1 however would suggest a more straightforward endodontic treatment with low risk of complications. The tool will provide you with E-CAT score, 0-4 indicates class 1, 5-9 indicate class 2, and any ECAT score above 10 is considered class 3 complexity. The higher the E-CAT score, the higher the risk of complexity expected.

CLINICAL AND HEALTH EDUCATION GROUP

The school of dentistry has a national and international reputation in educational innovation, which is supported by community of practice focused on the scholarship of teaching and learning. The overall focus of the group is the Development and Measurement of Clinical Capability, with strengths in programmatic assessment approaches and skills development through simulation.

Research focus areas

- The establishment of appropriate continuous professional development strategies for undergraduates.
- The development of psychosocial skills to support combined with approaches to support feedback, self-reflection and self-efficacy for student learning and the development of resilience.
- The development of programmatic assessment strategies to drive appropriate self-reflection and deliberate practice.
- The use of simulation to develop, support, and enhance clinical practice.
- Innovation in learning analytics and machine learning to support personal development and robust progression decisions.

Current Projects

- Ensuring the provision of meaningful feedback to support partnership working between students and staff. This project is multifaceted and explores key aspects of how feedback impacts goals setting, along with mental well-being with an aim to maximise the effectiveness and acceptability of feedback.
- Development of data visualisation tools to support personalised clinical development: This project is investigating approaches to triangulate, integrate, and personalise the display of complex data from clinical and academic assessment to support both effective personal reflection and reliable progress decisions.
- **INSPIREDTeL-** *Interdisciplinary Network for Simulation, 3D-Printing, Imaging & Research in Education, Digital Dentistry & Technology Enhanced Learning.* Simulation: Developing haptically enabled virtual and extended reality simulation for surgery rehearsal in order to practice procedures in a safe, immersive environment. Technology Enhanced Learning; Conducting research on the effectiveness of using blended learning approaches that combine simulation, 3D printing, and traditional classroom instruction.





PhD OPPORTUNITIES

The School of Dentistry's broad range of research interests provides for world-class research in dental science including clinical and dental education research. We have developed a [strategy](#) with the aim of developing high-quality research to improve health outcomes in the local population, and to help face global health challenges. Are you interested in pursuing a PHD at the School of Dentistry?

Click [here](#) for more details...

“The collaborative atmosphere within the Institute has enabled me to benefit not only from the knowledge and guidance of my supervisors, but also from the wider research community.”

James Hyde – Dental Science PhD student