AI technologies can analyse the large volumes of dental data obtained using digital technology and identify patterns and insights effectively, enhancing diagnosis,[9] decision-making,[10] and patient-tailored treatment planning[9] for more precise, personalised, and preventive oral healthcare, ultimately promoting precision dentistry, better patient outcomes,[9,11] and sustainability,[4,5] especially for underserved populations. AI can also enhance evidence synthesis and in turn help clinicians, patients and policymakers with choosing the most effective, efficient and sustainable options.[12]

While technological-driven solutions hold promise in dentistry, there are challenges and risks that need to be addressed before widespread adoption. These include, but are not limited to, issues related to oral health data availability, structure, comprehensiveness, as well as concerns about the methodological rigour and development standards.[7] There are also practical questions regarding the value, usefulness, and ethical considerations surrounding AI solutions.[7] The deployment, implementation and maintenance of AI requires significant resources, and costs for digitalisation and AI may aggravate inequalities in developing countries.[13] Also, AI may be biased, reinforcing inequalities and discrimination, and may violate principles of security, privacy and confidentiality of personal information.[4,9] To improve, AI models need more and more detailed data, which conflicts with the need for transparent and secure handling of personal data, especially in the healthcare sector.[13]

Benchmarking AI using standard datasets ensures accuracy of AI. Advocating open data and open code can enhance sustainability by reducing redundant AI development efforts.[4] Furthermore, it is essential to establish human-in-the-loop validating systems to avoid biased results and maintain the quality of AI decisions.[9] Oral health professionals should use AI to promote equitable and sustainable oral healthcare. This involves enhancing oral health monitoring, workforce training, and service accessibility. It also requires establishing clear standards, transparency, and legislation for AI in oral health. This will expand the use of digital health technologies, including AI, in the fields that can result in achieving SDG 9 targets.

Digital technology and AI go hand in hand in promoting innovation in the field of dentistry; they also help to foster sustainable dentistry and improve inclusivity and access to dental services for all, in developed and especially developing countries. They improve accuracy, efficiency, and patient outcomes, and build resilient infrastructure by optimising workflows, improving patient comfort, and improving waste reduction. This requires initial investment in infrastructure and training by governments and private sectors. Digital technology and AI complement, rather than replace, human intelligence. However, clinicians who use these technologies will replace those who don't. ∎

References

1. Ogunbodede E O. Actualisation of the Sustainable Development Goals (SDGs): The Role of Dentistry. *Niger J Dent Res* 2016; **1:** 1–9.
2. Tomaselli M F, Timko J, Kozak R *et al.* SDG 9: industry, innovation and infrastructure – anticipating the potential impacts on forests and forest-based livelihoods. *In* Katila P, Pierce Colfer C J, de Jong W, Galloway G, Pacheco P, Winkel G (eds) *Sustainable Development Goals: Their Impacts on Forests and People*. pp 279–314. Cambridge: Cambridge University Press, 2019.
3. FDI World Dental Federation. Sustainability in Dentistry: Adopted by the FDI General Assembly: August 2017, Madrid, Spain. *Int Dent J* 2018; **68:** 10–11.
4. Ducret M, Mörch C-M, Karteva T, Fisher J, Schwendicke F. Artificial intelligence for sustainable oral healthcare. *J Dent* 2022; **127:** 104344.
5. Hsu L-P, Huang Y-K, Chang Y-C. The implementation of artificial intelligence in dentistry could enhance environmental sustainability. *J Dent Sci* 2022; **17:** 1081–1082.
6. Srivastava R, Tangade P, Priyadarshi S. Transforming public health dentistry: Exploring the digital foothold for improved oral healthcare. *Int Dent J Students' Res* 2023; **11:** 61–67.
7. Schwendicke F, Samek W, Krois J. Artificial Intelligence in Dentistry: Chances and Challenges. *J Dent Res* 2020; **99:** 769–774.
8. Martin N, Sheppard M, Gorasia G P, Arora P, Cooper M, Mulligan S. Drivers, opportunities and best practice for sustainability in dentistry: A scoping review. *J Dent* 2021; **112:** 103737.
9. Huang H, Zheng O, Wang D *et al.* ChatGPT for Shaping the Future of Dentistry: The Potential of Multi-Modal Large Language Model. *Int J Oral Sci* 2023; **15:** 29.
10. Vodanović M, Subašić M, Milošević D, Savić Pavičin I. Artificial Intelligence in Medicine and Dentistry. *Acta Stomatol Croat* 2023; **57:** 70–84.
11. Dhopte A, Bagde H. Smart Smile: Revolutionizing Dentistry With Artificial Intelligence. *Cureus* 2023; DOI: 10.7759/cureus.41227.
12. Dorri M. AI and clinical decision making. *Br Dent J* 2023; **234:** 711.
13. Vinuesa R, Azizpour H, Leite I *et al.* The role of artificial intelligence in achieving the Sustainable Development Goals. *Nat Commun* 2020; **11:** 233.

Cardiff School of Dentistry awarded grant to study remote oral health assessment

Cardiff School of Dentistry is one of two recipients of this year's Eklund Foundation Grants.

The Eklund Foundation for Odontological Research and Education has been supporting research projects in dentistry for eight years. The 2023 Grant recipients will together receive funding amounting to around €275,500.

Since 2016, the Eklund Foundation, set up by the Eklund family (owners of TePe oral hygiene products) has distributed up to €250,000 annually, supporting odontological research worldwide.

The Eklund Foundation will award a grant of €121,742 to the Cardiff School of Dentistry project 'Evaluating the Validity and Patient Experience of Smartphone Intra-oral Photography for Remote Oral Health Assessment in Children: a Mixed Methods, Comparative Study' led by Nicola Innes, Head of Cardiff School of Dentistry, Professor and Consultant in Paediatric Dentistry, and co-applicants Waraf Al-yaseen, Lecturer in Dental Hygiene and Therapy and Jennifer Galloway, Senior Lecturer & Consultant in Orthodontics, Cardiff School of Dentistry.

The Cardiff team believe that their study will have the potential to positively influence accessibility to oral health care for many people.

Approximately €153,800 has been awarded to a research team at Karolinska institutet, Unit of Cardiology, Department of Medicine, Sweden led by Anna Norhammar, MD, Professor in cardiology, to investigate 'Periodontitis and Its Relation to Coronary Artery Disease (PAROKRANK) – a case controls study with mechanistic and prospective analyses'.

Joel Eklund, Chairman of the Board, Eklund Foundation, said, 'We are delighted to support these highly relevant studies. They have the potential to add valuable knowledge within their respective fields.'