Editor Desk

From the desk of Editor- in-Chief....

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Artificial Intelligence and digitalisation are significantly changing dentistry by improving patient involvement, education, treatment planning, and diagnostics by combining machine learning, imaging, and immersive technologies.

With macro averaged AUC ROC values of approximately 96%, AI systems are now able to analyse CBCT and panoramic radiographs in clinical diagnostics to identify pathologies like periodontal disease, missing teeth, and periapical lesions. These systems perform on par with expert human readers and process images up to 79× faster than conventional interpretation techniques. By accurately forecasting bone density and tissue growth, AI-powered segmentation tools improve guided bone regeneration results and expedite implant planning, cutting multi-hour workflows down to minutes. By combining imaging data into surgical planning workflows, these technologies, when used in tandem with intraoral scanners and CAD/CAM systems, allow for the quick and precise design and manufacturing of restorations, sometimes even same-day crowns or digitally generated guiding stents.

AI and digital tools are equally revolutionary in dental education and practice administration. In addition to helping with administrative duties like appointment scheduling and EHR documentation, ChatGPT and related NLP systems support patient communication by providing explanations of procedures, responding to frequently asked questions, and creating post-operative instructions. Through simulated cases, they tutor students in diagnosis and clinical reasoning, provide real-time feedback, summarise research, and assist in the more efficient draughting of scientific reports—albeit with careful supervision to prevent misinformation or ethical issues. Students can practise root canals, implant placement, or extractions in immersive, risk-free environments with AI-enhanced VR and AR platforms that offer personalised and predictive instruction.

But putting it into practice requires careful consideration of data protection, legal compliance, ethical AI use, and the possibility of bias or hallucinations, particularly with generative models like ChatGPT. Safe adoption depends on ensuring institutional control, validation of AI outputs, and clinical oversight.

AI and digitalisation, when carefully combined, are driving dentistry to new heights of accuracy, customisation, and efficiency—changing the chairside experience as well as the training path for aspiring professionals.

Your's:

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