## Generative Artificial Intelligence: Opportunities, Risks, and Responsibilities for Oral Sciences

**Alexandria, VA** – A new perspective article jointly published in the *Journal of Dental Research* and *JADA Foundational Science* highlights the transformative potential of generative artificial intelligence (AI) in dental, oral, and craniofacial research while cautioning against its misuse and ethical pitfalls.

Authored by Falk Schwendicke, LMU Clinics, Germany, et al., "Generative Artificial Intelligence: Opportunities, Risks, and Responsibilities for Oral Sciences" outlines how generative AI—capable of creating text, images, code, video, and speech—can accelerate scientific discovery. By retrieving, analyzing, summarizing, and contextualizing large datasets, AI promises gains in documentation, communication, reproducibility, and efficiency.

However, the authors warn that these benefits come with substantial challenges, including:

- Biases embedded in training data that risk reinforcing inequities.
- Overreliance and error propagation, where automation bias may mislead researchers.
- Plagiarism, fraud, and attribution problems, including concerns over academic integrity.
- Reproducibility gaps and AI "hallucinations" that fabricate false outputs.

The paper calls for transparent disclosure of AI use, robust verification methods, and clear distinction between synthetic and real-world data. Ethical oversight, equity considerations, and human accountability remain central to responsible integration.

"Generative AI can be a powerful partner in advancing dental and oral sciences, but it cannot replace human judgment, oversight, and responsibility," said Editor-in-Chief Nick Jakubovics. "Researchers, reviewers, and editors must work together to ensure AI supports, rather than undermines, the quality and credibility of our field."

The authors also emphasize the importance of continuous monitoring and engaging the public in discussions about AI's role in science. As guidelines from international bodies—including the International Committee of Medical Journal Editors and the European Commission—continue to evolve, standardized policies will be crucial in shaping AI's future use in research.

### About the *Journal of Dental Research*
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