



Fact Sheet

Oral Health in America Advances and Challenges

A Report from the National Institutes of Health

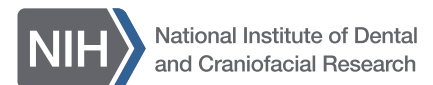
Section 6: Emerging Science and Promising Technologies to Transform Oral Health

Key Summary

- Science and technology provide the essential foundation for preventing and treating oral disease, and research breakthroughs during the past 20 years offer exciting opportunities to improve oral health.
- Tremendous advances have occurred in the technology supporting dental practice, including new, bio-inspired dental materials, innovative chairside diagnostic strategies, 3-D bioprinting, improved digital imaging, and artificial intelligence-based models.
- Discoveries related to the microbiome, genomics, and other omics offer promise for individualizing oral health care and revealing relationships among systemic diseases, suggesting possibilities for new treatments.
- Discoveries in cellular analyses and regenerative medicine are leading to new treatments to improve oral health, including techniques and products created for bone and soft tissue regeneration that currently are being used in clinical settings.
- The field of data science has grown considerably in the past 20 years, offering improved opportunities in “big” data analytics using integrated electronic health records and other large health databases for analyses as computing power has become more robust and efficient.
- Implementation science holds promise for more effective adoption of evidence-based oral health practices, reduction of oral health disparities, and improvement of oral health equity.
- The emergence of novel pathogens, such as COVID-19 and other as yet unknown agents, underscores the need to strengthen the scientific base and ensure the flexibility of the scientific enterprise to swiftly incorporate advances and technology necessary for addressing new health challenges.

Call to Action

- **Training, support, and mentorship of more oral health scientists and academics are needed to ensure a robust workforce who can extend and effectively use the advances in science that are so critical for delivering care in the changing landscape of oral health.**



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