

The Clinical Reality

In geriatric dentistry, the “*chief complaint*” is rarely just about teeth.

👤 Daughter translating for a mother who no longer recognizes her

👨 Spouse describing nighttime wandering

👉 Caregiver managing appointments and daily routines

while trying to hold a household together

🦷 Oral health is not a siloed outcome, it becomes a daily negotiation between cognition, function, dignity, social connection, and the resources a family can access and afford

GAP: Scalable, high-frequency oral biosignals may help identify vulnerability before crisis care is needed, yet

Beyond The Data: The Science Behind The Reflection

This reflection emerged from my clinical experiences in geriatric dentistry and from research work “*Exploring Neurological and Indirect Biomarkers for Potential Correlations with Oral Health: An Interdisciplinary Approach*,” within the NIH-funded Health and Aging Brain Study–Health Disparities (HABS-HD).

As a clinician-scientist, I ask a simple question:

What happens in the space between a bite and a biomarker?

The answer extends beyond disease and diagnostics. It lies in the biological and human pathways that connect oral function, nutrition, inflammation, caregiving, and cognitive aging.

The science inspired the question...

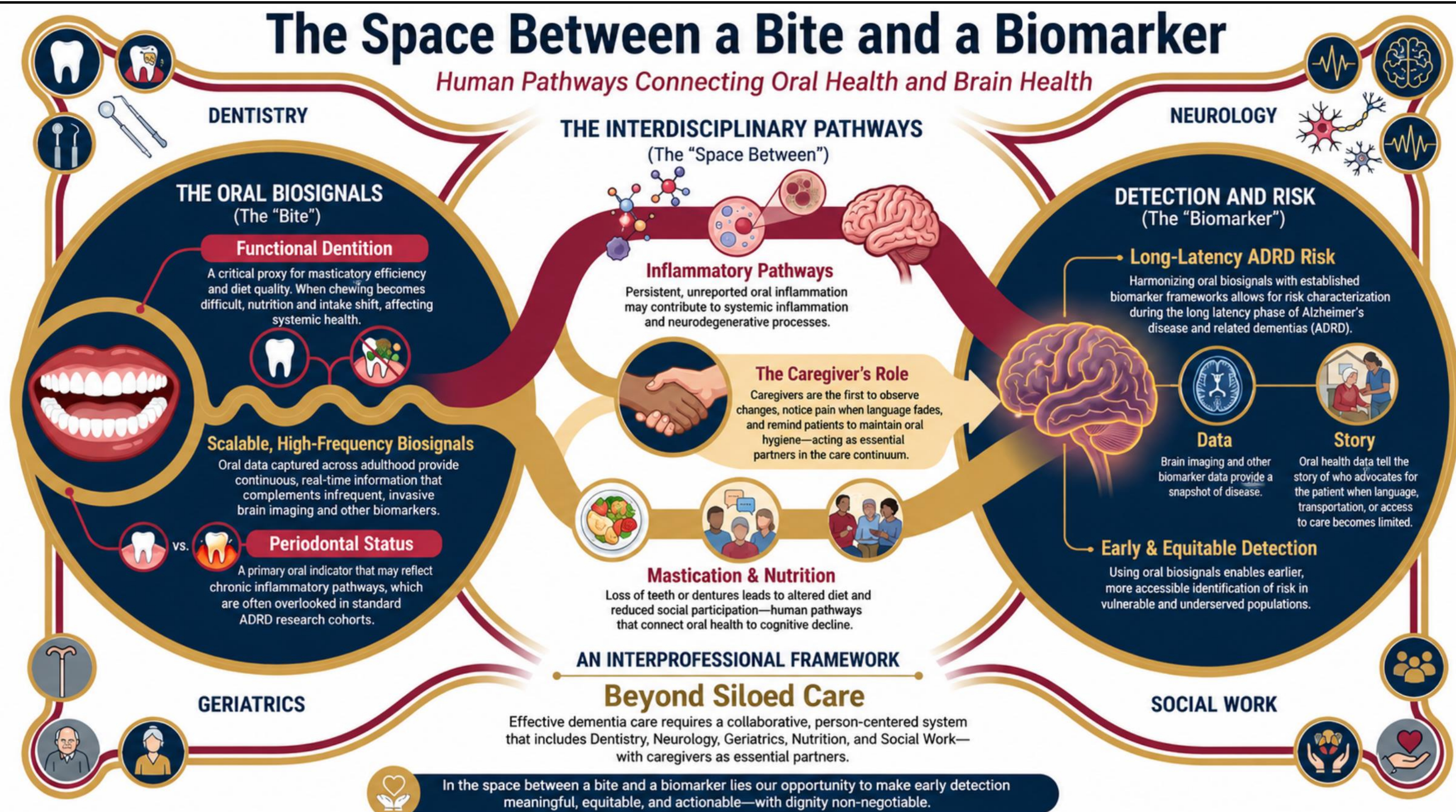
My patients and caregivers gave it meaning...

Oral Biosignals of Interest:

- **Functional Dentition:** A proxy for chewing efficiency, nutrition, and daily function
- **Periodontal Status:** A marker of chronic oral inflammation and systemic health



There is a person behind every biomarker. A brain image captures disease; oral health reveals how that disease is lived. Changes in chewing, nutrition, inflammation, communication, and social participation are not confounders—they are the human pathways that connect oral health to brain health.



These clinical experiences inspired a broader question: Could oral health provide early, accessible biosignals of brain health that help identify vulnerability to ADRD before clinical symptoms emerge?

Every biomarker tells a story, but oral health helps us understand the person behind the data.

Opportunities & Implications

Integrating oral health into dementia research is more than adding another measure, it recognizes oral function as an essential component of healthy cognitive aging, person-centered care, and equitable brain health across the life course.

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