

Commentary

Prevention, planetary health, and sustainable dentistry

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“My previous dentist didn’t care about me. They only cared about money.”

Rising material costs, crushing debt, and staffing challenges create intense pressure to produce and sell dentistry. Without adequate reimbursements, that pressure is felt not only by clinicians, but by patients. These strains are further compounded by climate-driven disruptions to supply chains, facilities, and patient health.¹

Yet a core strength of oral health care practitioners lies in optimizing complex trade-offs. Every clinical decision requires balancing biology, behavior change, time, cost, and precise technical skill. Oral health care practitioners are positioned to sustain both patient health and the ecosystems that support it. Without collective action, however, the planetary prognosis grows increasingly guarded.

Just as a close examination of the oral cavity can reveal broader patterns of health and disease, a 2023 article reported that humanity has breached 6 of 9 planetary boundaries, which is akin to recognizing a patient in systemic distress.² Without a resilient Earth system, human health is gravely at risk of disruption, with profound consequences.³

Health care accounts for 4% through 5% of global greenhouse emissions⁴ and 8.5% in the United States.⁵ Dentistry depends heavily on energy, water, sterilization, and single-use plastics, and climate-driven events such as wildfire smoke, extreme heat, and storms already interrupt care and endanger vulnerable patients.^{1,6}

If a person accepts these realities, prevention becomes more than clinically prudent; it becomes a necessity.

PREVENTION BENEFITS PATIENTS AND THE PLANET

Oral health is inseparable from systemic health. Periodontitis is associated with diabetes, cardiovascular disease, and adverse pregnancy outcomes, yet limited medical-dental integration misses opportunities for earlier intervention and lower total cost of care.^{7,8}

Prevention also supports planetary health. Preserving oral health reduces resource use, including materials, transportation, sterilization, packaging, and disposal, and each prevented restoration represents avoided emissions and downstream costs of replacement.

Value in dentistry is created not by procedural volume, but by disease prevented and health maintained. Sustainable dentistry is inherently preventive, minimally invasive, and systemically informed. When oral health care providers shift from fixing teeth to supporting whole-person health, outcomes improve while resource use and costs decline.

SEEING THE WHOLE PATIENT

Picture the first visit by a new patient. Digital registration and integrated medical-dental records reveal a female veteran with chronic pain, diabetes, and plans to start a family. The dentist gets a glimpse into their caries risk and systemic vulnerabilities.

The dentist greets her warmly, checks her blood pressure, reviews her medical history, and uses artificial intelligence–aided radiography to assess potential lesions. The dentist connects oral findings, like dry mouth and worn teeth, to sleep, stress, diet, hydration, and chronic conditions,^{9,10}

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and with shared decision making, cocreates a plan with the patient focused on function and prevention. This includes applying silver diamine fluoride and fluoride varnish to noncavitated lesions, prescribing remineralizing toothpaste, counseling on behavioral and nutritional habits, and coordinating care with her medical care provider.

This is the expanding role of dentistry: advancing systemic health through the oral gateway by prioritizing prevention and education. Using integrated medical data, such as laboratory values and primary care notes, and seeking to understand the behaviors of each patient, dentists can intervene earlier, coach healthy lifestyle changes, and deliver care that is measured not by procedures performed but by health preserved, thereby creating long-term value for patients, families, and the health care system.

Meanwhile, the practice itself runs on efficient, resilient systems: reusable cloth bibs and personal protective equipment, digital records and imaging, light-emitting diode lighting, dry waterless vacuum systems, telehealth follow-ups, computer-aided design and computer-aided manufacturing for same-day dentistry, efficient sterilization, and heat-pump heating, ventilation, and air conditioning powered by solar and battery power.

This is aligned sustainable dentistry. When dentists prevent disease and choose efficient systems, they conserve resources while improving outcomes.

WHERE INSURANCE BLOCKS PROGRESS

This care model is clinically sound and environmentally responsible, yet poorly supported. Dental insurance continues to reward procedures over prevention and short-term fixes over long-term health. Even when clinicians practice minimally invasive care, reimbursement often lags, leaving practices to absorb uncompensated time, patients to decline uncovered services, and disease to progress.

Most dental plans inadequately cover evidence-based preventive services,¹¹ including silver diamine fluoride, fluoride varnish, nutritional counseling, occlusal guards, and caries risk assessments. When restorative care is necessary, reimbursement rarely supports high-quality dentistry. Annual maximums have stagnated: \$1,000 in 1950 (\approx \$13,000 today) now averages only \$1,500 to \$2,000.¹²

A system that undervalues prevention and quality care perpetuates disease and waste. Caries is largely preventable, yet without sufficient time and resources to address its causes, clinicians are left treating its consequences. To break this cycle, payment models must reward health, not procedures.

VALUE-BASED CARE SHOWS PROMISE

Medical value-based care models show that prevention lowers costs and improves outcomes.¹³ Dentistry needs similar frameworks.

Examples are emerging

- DentaQuest offers bonuses tied to improved oral health.¹⁴
- The Liberty Dental Benefits and Rewards for Utilization, Services and Healthy Outcomes (known as BRUSH) program incentivizes arresting disease.¹⁵
- Some models combine base payments with quality incentives.¹⁶

However, limited transparency and insufficient clinician engagement continue to hinder successful implementation of value-based care.

Imagine a reimbursement model that supports caries management by risk assessment protocols,¹¹ fluoride varnish applications in medical and dental settings for both children and adults, more frequent periodontal maintenance for high-risk patients, nutrition counseling, and adaptive hygiene aids for patients with dexterity challenges. Imagine also reimbursement that allows clinicians to capture the images they need, rather than limiting care to minimal radiographs, so that conditions can be accurately identified and treated early.

Such a model would transform clinical decision making, improve outcomes, and reduce downstream interventions, benefiting both patient health and ecological impact.

Payment reform is essential but not sufficient. Clinical habits, education, and professional culture must evolve alongside reimbursement.

CONCLUSIONS

Prevention-focused, systemically integrated dentistry is sustainable care. It calls on oral health care providers to prioritize minimally invasive dentistry, advocate for value-based reimbursement, and strengthen education in prevention and climate literacy, starting with everyday actions like assessing salivary health and oral-systemic links at each visit.

Dentistry cannot be siloed from systemic or planetary health. When a rehabilitated patient returns for a recall examination and receives a clean bill of health, it is a shared success to celebrate, for oral health care team members, the patient, and the planet. ■

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