Guest Editorial

Climate change and the unforeseen challenges for dental practice

Frank W. Licari, DDS, MPH, MBA; Shankargouda Patil, BDS, MDS, PhD

Climate change is creating multiple challenges to population health and health care delivery.[1] For many, the relationship between climate change and dentistry may seem tenuous. Climate change, human migration patterns, demographic characteristics, and disease prevalence are predicted to be affected negatively from a population health perspective.[2] As weather events become more severe and frequent, the impact of climate change on dental and health care infrastructure is increasingly evident.[3] Among the lesser discussed repercussions are the escalating insurance costs and potential withdrawal of insurance coverage for practices in geographic areas considered at risk.

Insurance, a cornerstone of financial protection for health facilities such as dental clinics, faces threats as companies reconsider the profitability of providing coverage in risk-prone areas. At the core of insurance operations is a risk-assessment model. Premiums are determined on the basis of the anticipated risk associated with a particular property or operation. Climate change is disrupting these traditional models. With an increase in extreme weather events,[4] the risks associated with insuring properties, especially in vulnerable areas, have surged. As observed in states like California, Florida, and Louisiana, insurance companies are becoming increasingly hesitant to cover properties in areas prone to climate-induced disasters. The rationale is straightforward; insuring properties in high-risk areas is rapidly becoming an unviable economic decision.

Rising risks of climate change are not merely an economic concern, they represent a substantial operational challenge for dental clinics.

Dental clinics, like any physical infrastructure, are vulnerable to extreme weather events rendering them inoperable. The subsequent loss extends beyond brick and mortar; vital patient records, billing data, and expensive dental equipment are at stake. Without adequate insurance coverage, recovering from such losses becomes an arduous, if not impossible, task. Insurance companies may continue to offer coverage in risk-prone areas but at significantly higher rates. This cost increase could be prohibitive for many dental practices, particularly smaller clinics, sounding the death knell for many small establishments and forcing them to shut down or relocate.

More commonly, insurance providers may decide to stop offering coverage altogether in certain regions. In regions, such as California, that have been plagued by disastrous wildfires, the property insurance landscape has witnessed a seismic shift. For instance, State Farm, one of the country's largest insurance providers, ceased accepting new applications for California property insurance, citing reasons such as "rapidly growing catastrophe exposure."[5] This move, while curtailing new policies, also signals a broader trend of heightened premiums for existing policy holders due to increased risk. This would leave existing dental clinics with no option but to bear the higher premiums.

Rising risks of climate change are not merely an economic concern,[6] they represent a substantial operational challenge for dental clinics. Financial strains may render maintaining a practice in climate-risk areas untenable, compelling dental care professionals to relocate to more financially secure regions. The ramifications of these insurance challenges are not limited to dental clinics. Patients, too, face adverse consequences. The added costs of higher insurance premiums might be passed on to patients in the form of increased fees, making oral health care less accessible. With

Guest editorials represent the opinions of the authors and not necessarily those of the American Dental Association.

heightened personal medical expenses, many residents might defer or skip oral health care due to affordability concerns. The potential loss of dental care professionals and reduced use of dental services could culminate in areas with limited to no dental services—effectively creating dental deserts. Some areas, such as Lafayette County in Florida, have no dentists at all, causing the population to seek oral health care in neighboring counties.[7] These regions, bereft of oral health care, underscore the broader, often overlooked, sociohealth repercussions of climate change.

The escalating implications of climate change on sectors such as health care epitomize the resulting pressing economic, social, and health challenges. Anthropogenic emissions are contributing to climate change and affecting disease demographics. Increased temperatures and altered precipitation patterns are predicted to expand the geographic range of vector-borne diseases, consequently amplifying their impact on public health.[8] Coupled with the unpredictable expansion of risk areas, there is a need for adaptive strategies. The mounting threat due to climate change is having broad and diverse effects on the oral health care sector. This unprecedented situation mandates a comprehensive policy overhaul at federal[9] and state levels, integrating novel risk assessments and promoting resilient global initiatives to mitigate the impacts of climate change.

Oral health care practices can focus on reducing their carbon footprint through measures such as implementing energy-efficient equipment, opting for reusable or biodegradable dental materials to minimize waste generation, and integrating digital technologies to reduce paper use.[10] Such measures can support the broader endeavor of mitigating the environmental impact and contributions from health care services. Dental clinics and practices, although seemingly peripheral to the direct impacts of climate catastrophes, are entwined in the intricate web of climate change repercussions. Although dental clinics can institute a range of strategies to reduce their carbon footprints, achieving comprehensive, system-wide change hinges on the collective recognition and active mitigation of these challenges. Action now is imperative for the sustainability of dental practices and to ensure uninterrupted and affordable oral health care for patients. ■

https://doi.org/10.1016/j.adaj.2023.12.005

DISCLOSURE

Drs. Licari and Patil did not report any disclosures.

Dr. Licari is a professor and the dean, College of Dental Medicine, Roseman University of Health Sciences, South Jordan, UT.

Dr. Patil is a professor, College of Dental Medicine, Roseman University of Health Sciences, South Jordan, UT. Address correspondence to Dr. Patil, College of Dental Medicine, Roseman University of Health Sciences, 10894 S. River Front Parkway, South Jordan, Utah 84095, email spatil@roseman.edu.

ORCID Numbers. Frank W. Licari: https://orcid.org/0000-0001-6230-0103; Shankargouda Patil: https://orcid.org/0000-0001-7246-5497. For information regarding ORCID numbers, go to http://orcid.org.

1. Campbell-Lendrum D, Neville T, Schweizer C, Neira M. Climate change and health: three grand challenges. *Nat Med*. 2023;29(7):1631-1638.

2. Tran HM, Chuang T-W, Chuang H-C, Tsai F-J. Climate change and mortality rates of COPD and asthma: a global analysis from 2000 to 2018. *Environ Res*. 2023; 233:116448. doi:10.1016/j.envres.2023.116448

3. Patel L, Conlon KC, Sorensen C, et al. Climate change and extreme heat events: how health systems should prepare. *NEJM Catal Innov Care Deliv*. 2022;3(7): CAT-21.

4. Zhuang Y, Fu R, Santer BD, Dickinson RE, Hall A. Quantifying contributions of natural variability and anthropogenic forcings on increased fire weather risk over the western United States. *Proc Natl Acad Sci U S A*. 2021; 118(45):e2111875118. doi:10.1073/pnas.2111875118

5. California new business update. State Farm General Insurance Company. Accessed September 1, 2023. https://newsroom.statefarm.com/state-farm-general-insurance-company-california-new-business-update

6. Curcio D, Gianfrancesco I, Vioto D. Climate change and financial systemic risk: evidence from US banks and insurers. *J Financ Stab*. 2023;66:101132. doi:10.1016/j.jfs.2023.101132

7. Dentists (DMD, DDS). FLHealthCHARTS. Florida Department of Health. Accessed September 1, 2023. https://www.flhealthcharts.gov/ChartsDashboards/rdPage.aspx?rdReport=NonVitalIndNoGrp.TenYrsRpt&cid=326

8. Caminade C, McIntyre KM, Jones AE. Impact of recent and future climate change on vector-borne diseases. *Ann N Y Acad Sci*. 2019;1436(1):157-173.

9. Zhang F, Lin N, Kunreuther H. Benefits of and strategies to update premium rates in the US National Flood Insurance Program under climate change. *Risk Anal*. 2023;43(8):1627-1640.

10. Duane B, Steinbach I, Harford S, Armstrong N. Reducing the energy needs of your dental practice. In: Duane B, ed. *Sustainable Dentistry: Making a Difference*. Springer; 2023:53-72.