

For Immediate Release

## DAIC Publishes First Study; Findings Show Glaring Inconsistency in Dental Diagnosis & Treatment

- 136 dentists were unable to unanimously agree on diagnosis and treatment for a single tooth in the study
- Per dentist whole-mouth treatment costs ranged from a high of \$36,000 to a low of a few hundred dollars
- Lack of diagnostic and treatment consistency can impact public trust in dentistry

**LOS ANGELES, December 21, 2020** — The Dental AI Council ([DAIC](#)), a non-profit defining the future of artificial intelligence (AI) in dentistry through research and education, today announced the results of its first major study since its [formation earlier this year](#). Titled [Inconsistency in Radiographic Dental Diagnostics & Treatment Planning](#), the study spanned 136 licensed practicing dentists across 14 countries. Dentists were asked to review and diagnose pathologies presented in a full mouth radiographic image series. As each dentist made a pathology diagnosis, they then recommended a corresponding standardized-cost treatment plan, allowing study authors to accurately compare full mouth treatment plan fees across each participating dentist.

Across study results, diagnoses and treatment plans varied significantly from dentist to dentist. Consensus was infrequent. There were no cases where all of the respondents agreed unanimously upon the existence of tooth decay. Where dentists agreed on the existence of decay, the determination of its severity, its penetration level and whether it was recurrent or not varied widely. Diagnostic study findings also included:

- In no instance did more than 81% of respondents concur in a diagnosis.
- The highest levels of agreement occurred in identifying the presence of non-metallic fillings (81%), impacted molars (65%) and recurrent decay (63 percent).
- Tooth 16 was identified by 89 respondents as impacted, but only one respondent outside the US proposed extracting it, while 51 of 66 US respondents did.

Perhaps most striking among study results was variability across whole mouth treatment costs. For example, the highest cost whole mouth treatment plan (\$36,000) was 20 times greater than the lowest cost plan (a few hundred dollars). Five dentists determined treatment costs in excess of \$18,000.

“There’s been anecdotal inconsistency in diagnosis and treatment planning between dentists, but the scope of the problem is hard to quantify or understand at scale,” said DAIC founding member Ron Bolden, Vice President of Dental Market Insight at Cigna. “Practicing dentists certainly want to make the most accurate diagnosis using all available resources and tools, but broad awareness of how technologies like AI can improve the quality and consistency of care, has yet to take root. This study is helpful because anyone who sees the numbers can’t help but want to find ways to be better.”

While it's reasonable that different dentists would select different treatments for a given condition, the scale of variability is troubling—particularly in light of the fact that treatment inconsistencies have a direct impact on what patients and insurers pay for treatment. When treatment variability leads to overtreatment or excessive treatment cost – which itself is a common impediment to acceptance of essential treatment among patients – loss of patient trust becomes a concern, with significant implications for the oral health of patients and the financial health of the dental industry.

“For a study tethered to standardized costs to show fee differentials of \$30,000 or more is disconcerting,” said Dr. Sanjay Mallya, DAIC founding member and Chair of Oral & Maxillofacial Radiology at UCLA School of Dentistry. “My hope is that this study will provide a little gut check for the industry, and that, as the DAIC rolls out additional research in 2021 and beyond, we’ll bring more evidence like this that inspire efforts to establish more consistent standards of dental care.”

For those interested in participating in future DAIC research projects or contributing in other ways to the organization's effort, the DAIC is [now accepting members](#).

The full study can be downloaded [here](#). To learn more or join the DAIC, please visit: [www.dentalaicouncil.org/membership](http://www.dentalaicouncil.org/membership).

#### **About the Dental AI Council**

The Dental AI Council (DAIC) is a trade organization devoted to helping define the future of artificial intelligence (AI) in dentistry. It brings together leaders from across the dental category to advance research, education, and thought leadership on AI and its dental applications. Organized by the AI company Pearl, its members represent every dental industry constituency, including practitioners, DSOs, insurance carriers, OEMs, PMS providers, laboratories, and universities. For more information, please visit [www.dentalaicouncil.org](http://www.dentalaicouncil.org)

#### **Media Contact**

Nate Hermes or Mariah Borthwick  
646-828-9172  
[pearl@hermesprgroup.com](mailto:pearl@hermesprgroup.com)