IADR
International Association for Dental Research

FOR IMMEDIATE RELEASE
EMBARGOED UNTIL 2 P.M. CHINA STANDARD TIME (UCT+08:00) JUNE 25, 2022

Contact:
Matt Niner
+1.703.299.8084
media@iadr.org

Machine Learning Predicts Oral Cancer Risk

Alexandria, VA, USA, June 17, 2022 – A study aiming to develop a machine learning-based platform to predict the risk of oral cancer and oral potentially malignant disorders(OPMDs) will be presented at the 100th General Session and Exhibition of the IADR, to be held in conjunction with the 5th Meeting of the IADR Asia Pacific Region.

The Interactive Talk presentation, "Predicting Oral Cancer Risk using Machine Learning", will take place on **Saturday, June 25th, 2022 at 2 p.m. China Standard Time (UTC+08:00)** during the "e-Oral Health Network I" session. The study, undertaken by John Adeoye of the University of Hong Kong, SAR China, aims to develop a machine learning-based platform to predict the risk of oral cancer and oral potentially malignant disorders (OPMDs).

Visual oral examination (VOE) was performed among 1467 participants of a community-based screening program by three calibrated dentists prospectively. Each individual's status was defined as positive/negative for oral cancer/OPMDs and histologic confirmation of epithelial dysplasia (ED) and squamous cell carcinoma (SCC) was performed for positive status. Follow-up status of those that screened negative was monitored via state-linked electronic health records. Information on demography, habitual, lifestyle and familial risk factors was obtained, and expired carbon monoxide levels (in ppm) were assessed using a monitor. Input features (n=40) and histologic diagnoses were used to populate 12 machine learning algorithms with 80:20 train-test splitting applied to the data randomly during development. Recursive feature elimination with 10-fold cross-validation was used for feature selection while synthetic-minority-oversampling-technique with edited-nearest-neighbors was implemented for class imbalance correction. Internal validation was conducted with the unused 20% data with the comparison of outputs using McNemar's test used for optimal model selection Performance metrics included recall, specificity, and F1-score.

The study demonstrated that machine learning is a successful tool for predicting oral cancer risk and may be applied to identify 'at-risk populations' in opportunistic and organized screening.

View this Interactive Talk in the IADR General Session Virtual Experience Platform.

About IADR
The International Association for Dental Research (IADR) is a nonprofit organization with over 10,000 individual members worldwide, with a Mission to drive dental, oral and craniofacial research to advance health and well-being worldwide. To learn more, visit www.iadr.org.