



2025 Orthodontic Faculty Development Fellowship Award Dr. Min Kyeong Lee, University of Illinois-Chicago

Short biography

Dr. Min Kyeong “Irene” Lee is an Associate Professor and Associate Director of Externship Program at University of Illinois Chicago Department of Orthodontics. She received her DMD, DMSc, and certificate in orthodontics from Harvard School of Dental Medicine in Boston, MA and completed a clinical fellowship in Craniofacial and Special Needs Orthodontics at Children’s Hospital Los Angeles. Dr. Lee is a big data analytics researcher with an interest in examining hospital-related outcomes using nationwide datasets such as the Nationwide Inpatient Sample and Nationwide Emergency Department Datasets.

A brief description of the project

Obstructive sleep apnea (OSA) leads to fragmented sleep and results in significant adverse consequences such as excessive daytime sleepiness, cardiovascular morbidity, mental illness, poor quality of life, decreased memory and executive function, compromised driving safety, and shorted life expectancy. OSA affects over 1 billion people in the world, and when severe, OSA may necessitate visits to emergency department (ED) and even lead to hospitalization. While the burden of OSA is great, it is considered a major and under-recognized public health concern. There is paucity of updated nationally representative estimates of OSA visits to hospital-based emergency departments and subsequent hospitalization outcomes. This study aims to (1) characterize patients who visit hospital-based ED for OSA and to (2) identify high-risk cohorts of patients who are hospitalized after the ED visits. Machine learning models that effectively process the big datasets will be developed to better adjust for patient level factors to identify risk factors for the outcomes.

How orthodontic education will benefit from your award

The proposed study will identify recent trends in OSA ED visits and to examine outcomes following these hospital-based ED visits using the Nationwide Emergency Department Sample (NEDS). Specifically, we will use supervised machine learning (neural network model) approach to simultaneously adjust for multiple confounding variables. The study findings will highlight patients with OSA at risk for needing care in the ED and subsequent hospitalization and raise awareness among clinicians to identify high risk patients to better control their OSA.

Why the Foundation is important to your project

The OFDFA funding will be instrumental for the success of this project. The funding will be used to purchase the NEDS datasets, clean the data, set up of the final dataset analysis, and write the machine learning codes to analyze the data. The funding will also support educational plan and travel expenses to present and disseminate study findings.

How Foundation funding is expected to benefit your career

Part of the OFDFA funding will be used to support didactic activities in research, clinical care, and teaching. Developing skill sets in all of these areas is crucial as an early career faculty aspiring to be a clinician-scientist in academic orthodontics. The OFDFA funding will play a key role in completing these activities, which will prepare me for future research projects.