



Dr. Amber Alak
2026 Research Aid Award
Columbia University College of Dental Medicine

1) a short biography

I graduated from the University of Michigan in 2021 with a bachelor's degree in Biomolecular Sciences. After graduation, I attended Boston University for dental school and received my doctorate in dental medicine (DMD). Throughout my time in dental school, I worked on several research projects that fostered my passion for educational research and public health work. In one project, I conducted a retrospective study to determine the volumetric changes of all paranasal sinuses pre-, peri-, and postoperatively following LeFort I Surgery. I also led a study that focused on evaluating the effectiveness of recently introduced teaching methods on temporomandibular disorders (TMD) for dental students. The aim was to determine if this new teaching approach enhances students' comprehension and retention of TMD concepts compared to prior teaching methods. This project showed me how important it is to incorporate various teaching methods into a curriculum to enhance student retention and engagement.

My postgraduate education continued at Columbia University College of Dental Medicine. I am currently completing a postdoctoral orthodontic residency with a master's research component. Currently, my research interest has expanded to include clinical work that will be applicable to our patient population. My master's thesis project aims to evaluate mandibular growth in patients with Pierre Robin Sequence, comparing those with and without mandibular distraction osteogenesis in infancy. With this research, we will be able to understand how this interceptive care affects mandibular morphology later in life. This will help surgeons and orthodontists better anticipate the long-term outcomes of different treatment interventions in this high-risk patient population. In addition to research, I have spent my first year of residency honing my treatment planning abilities, developing my patient management skills, and establishing my role as a leader in the world of healthcare. My long-term research goals include publishing work that helps inform early treatment decisions and increase access to care to patients from all backgrounds.

2) a brief description of the project

This study will examine the effects of mandibular distraction osteogenesis in infancy on mandibular growth of pre-adolescent children with Pierre Robin Sequence (PRS). This information will allow us to better (1) identify the optimal candidates for this surgery (2) anticipate future growth trajectory with and without the surgery (3) more accurately plan future treatment needs for this patient population based on their initial presentation and surgical history.

3) a statement of how orthodontic education will benefit from your award

The findings of this study will provide more clarity on the ≥ 5 -year mandibular growth trajectory of patients with PRS who underwent MDO compared to PRS patients who were managed conservatively. Consequently, treating providers will be better able to identify optimal candidates for distraction surgery and anticipate future clinical needs for this patient population as they continue their care. Pierre Robin Sequence remains understudied. Our research is seeking to advance the understanding of treatment options for patients with PRS to more accurately and effectively treat these patients and guide their future treatment sequelae.

4) why the Foundation is important to your project

The foundation is crucial to the project as it allows us to provide consultations and take necessary imaging on patients to evaluate treatment needs. The American Association of Orthodontists recommends an orthodontic evaluation for all patients by age 7. However, the cost of consultations and imaging may be a barrier to care for

many of our patients. By covering the cost of these procedures, not only can we improve access to care, but we can also include a wider scope of the vulnerable PRS population within our study. This will allow us to better understand this PRS cohort and also make any necessary interventional treatment recommendations based on our clinical findings for each patient.

5) how Foundation funding is expected to or has benefitted your career

The AAOF funding is not only helping to advance research in patients with PRS, but it is also aiding in my understanding of how to better treat patients with complex medical histories. Through this work, I am learning more about the challenges these patients face such as variations in growth, compounding syndromes, and the need for care from many different specialists. This experience is helping me improve how I plan treatments, work with other healthcare providers, and think about both short-term and long-term treatment implications. Overall, it is helping me become a more confident and well-rounded clinician who can provide better, patient-centered care.