Year: 2023 **Type of Awards (Elite)**

Name of Principal Investigator: Chung How Kau **Affiliated Institution: UAB**

About of the PI

- Introduction & Education:

Professor Chung H. Kau is a clinical Orthodontist. He is Professor and Chair at the Department of Orthodontics, University of Alabama at Birmingham. He also holds academic appointments as Professor, Division of Pediatric Plastic Surgery, Department of Surgery, Heersink School of Medicine and Senior Scientist at the Global Center for Craniofacial, Oral and Dental Disorders. He is a Diplomate of the American Board of Orthodontics (US), Specialist Orthodontist on the Singapore Dental Council and the General Dental Council (United Kingdom). He serves as the Director of the Craniofacial Orthodontia Clinic in partnership with the Children's Rehabilitation Service and Medicaid of Alabama and is the craniofacial orthodontist on the Cleft Craniofacial Team at Children's Hospital of Alabama. He enjoys practicing clinical orthodontics has a special interest in craniofacial anomalies and dento-facial deformities. He has also been featured on CBS Nightly News, WBRC (Alabama) and ABC33 (Alabama) on various Orthodontic topics.

- Career Trajectory:

Chung How started his academic career Cardiff University. During this time, he was involved in clinical care, postgraduate teaching and research. After 4 years, he joined the University of Texas Health Science Center at Houston as Associate Professor and Director of the 3D Imaging Lab. In 2010, he was appointed as Department Chair at the University of Alabama at Birmingham.

- Research Contributions, Impact & Recognition:

He is also a researcher with a keen interest in clinical translational research focusing on technology driven orthodontic applications, dent-facial deformities, juvenile idiopathic arthritis, accelerated tooth movement and 4D jaw tracking. At present, he is Principal Investigator on several NIH and Industry grants and has a research involvement in excess of US$4+ million dollars. He actively contributes and publishes in the orthodontic literature and has over 450 peer-reviewed publications, conference papers and lectures. He has over 175 invited presentations and lectures in over 50 countries. In 2011, he was awarded the King James IV Professor by the Royal College of Surgeons of Edinburgh where he also served as the International Advisor for the USA and examiner for the MFDS and MOrth examinations. He holds visiting Professorships at the University of Debrecen, Nanjing Medical University, University of Szeged and Xi'an Jiao Tong University.

- Personal Insights:

Chung How has been supported with great mentors and professional colleagues. He is grateful for the many opportunities and friendships created through the years.

- Future Directions:

He excited on the future of the profession of orthodontics. He believes that technology and innovations will transform patient care to a more customized and personalized approach.

Brief Summary of the Project:

Background: Juvenile Idiopathic Arthritis (JIA) is the most common chronic arthritis in childhood and represents a series of chronic inflammatory arthritides that develop before the age of 16 years. JIA affects up to 150 in 100,000 children around the globe and has a significant debilitating effect on these young children. **Potential Benefits and Risks**: The proposed study will enable us to understand how Orthodontists and Oral and Maxillofacial Surgeons manage JIA in their clinical settings. It will also identify patient related outcomes that are

of related to contemporary treatment modalities as well as those that will have a profound impact on the long term. Furthermore, the study findings will enable practitioners to better prepare for disease progression and provide an evidence-based management strategy for these patients. The study is designed as a survey of clinical providers and the data collected will not compromise the privacy of patients and integrity of data. **Specific Aims:** The proposed study has four specific aims. ***Specific Aim # 1***: The objective of this specific aim is to examine the current diagnostic protocols of orthodontists and oral and maxillofacial surgery providers in the USA in the diagnosis of JIA and TMJ involvement. ***Specific Aim # 2***: The objective of this specific aim is to assess the treatment strategies for patients when a diagnosis of JIA is present. ***Specific Aim # 3***: The objective of this specific aim is to assess orthodontic treatment outcomes of patients. ***Specific Aim # 4***: The objective of this specific aim is to assess oral and maxillofacial surgery treatment outcomes of patients. **Study Design, Variables of interest, and Procedures**: The study will enroll 75 orthodontic practitioners who provide orthodontic care and 75 Oral and Maxillofacial Surgery practitioners across the 6 regions of the Practice Based Network. A survey will be administered to the study practitioners to capture information on the variables of interest. Each aim will assess both independent variables and outcome variables. Simple descriptive statistics will be used to summarize the responses of practitioners. For each of the specific aims, multivariable regression models (linear, logistic, ordinal, and polynomial regression models as appropriate) will be used to assess the association between the mix of independent variables and outcomes of interest. It is anticipated that it will take 20 to 30 minutes to complete the study questionnaire. **Institutional Board Review (IRB):** This study will be done at the University of Alabama at Birmingham. The project does not meet the regulatory definition of human subjects' research and that IRB review can be in the exempted category. We are not collecting any practitioner level unique identifiers and will not present any individual level data. **Study Timetable:** Overall duration of study is 12 months.