XIX. CALL FOR PROPOSALS (CFP) TO STUDY

IMPENDING ISSUES IN ORTHODONTICS

The American Association of Orthodontists Foundation (AAOF) announces its interest to fund investigator-defined studies to advance the utility of Teleorthodontics, Artificial Intelligence, and Direct to Consumer issues.

The investigator-defined proposals will naturally vary in their focus and methods of study, but they are expected to offer, or lead to, solutions to the present and future issues of the orthodontic specialty listed below.

BACKGROUND:

The industrialized world has lost a full year in discovery and productivity due to the pandemic. Pleasantly, it is now catching up with much vitality and enthusiasm. Orthodontics must join in this wave. Accordingly, the AAOF is issuing this call for proposals within the framework and principle that new developments to steer and advance the specialty are needed where:
- There is new information, which we did not have before
- There are new materials, instruments, and technologies we did not have before
- Underwhelming performance of the existing systems

This CFP is dedicated to

TELEORTHODONTICS (not dentistry)

Define the Aims of "discovery."
- Design and manufacturing of new equipment and systems to facilitate remote clinical examination.
- Studies of effectiveness and efficiency of teleorthodontics equated to in-person examination, diagnosis, and delivery of treatment.
- Assessments of teleorthodontics to deliver better (define "better"), cheaper, faster, and infection and pain-free performance.

    Note:
- Opinions and anecdotal testimonials should have no place.
- What will be the benefits of teleorthodontics? Please list all.

ARTIFICIAL INTELLIGENCE

Define the nature of potential projects to use AI. That is, what is the understanding of AI among PARC. What do they envision?

Potential investigations could be:
- Manufacturing of hardware and software components for use in AI mediated projects.
- Robotics capable of replacing assistants.
- Planning of treatment mechanics and predictions of outcomes.

- Data analysis for orthodontic treatment centers.
- Mathematical predictions and preparations for future events.

DIRECT TO CONSUMER (DTC) RESEARCH AREAS

Need to define the issues of DTC and follow it by a vision for the future. What is expected of DTC to do?

- Marketing to attract more patients.
- Marketing to apply novel appliances for treatment.
- Retail selling of appliances that require less orthodontist supervision.
- Changes that will affect the future in marketing, office design, utilization of staff, overhead, external services to facilitate direct marketing.
- Modifications and inventions of appliances to perform DTC marketing.
- Changes in the classification of malocclusion types to facilitate DTC
- Assignment and awarding of special certification for DTC orthodontists.

ARTIFICIAL INTELLIGENCE BASED DTC

- Instruments that report on intraoral conditions such as, periodontal changes, appliance malfunctions, compliance, in addition to somatic growth status with comparisons to initial diagnosis, and planned treatment mechanics. Suggestions will be made by AI, for course correction, at the current patient visits.
- Novel Software to plan qualitative treatment mechanics in 3D
- Novel equipment and software to "qualitatively" assess the conditions the patient presents, and to design the mechanotherapy. Inherent in this software should be a mechanism to "qualitatively" track the changes in teeth, gingiva, and the face, from appointment-to-appointment.
- Novel Software where the orthodontist owner can market based on the potential patients' persona. The developed software should be capable to identify potential patients' preferences for buying material items, services, and esthetics. The software should be designed for continuous monitoring of the drawing area.
- Develop "robot" orthodontic assistants. Robots that work on patients must be precise and interact with AI. Robots could cost less in the long term, as unlike assistants they will not require fringe benefits, or leave the office after all the investment in training.

APPLICATIONS

The applications can be submitted under the Center Award, Biomedical Research Award, Post-doctoral Fellowship Award, Orthodontic Faculty Development Fellowship Award, and Research Aid Award categories.