



# Education and Experience Using Clear Aligner Therapy and 3D Technology in Graduate Orthodontic Residency Programs

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## INTRODUCTION

Clear aligner therapy and the application of 3D technologies has changed the way orthodontics is practiced and provided to the patients. Current developments allow application of these technologies in the areas of initial records, diagnosis, treatment planning, treatment monitoring and post-treatment evaluations and recommendations.

The rise of clear aligners as a treatment method is poised for explosive growth, both in the U.S. and globally. Estimates point to an expected compound annual growth rate of nearly 13% for the clear aligner market for the period 2016-2020.

All phases of orthodontic treatment utilize these new technologies making it more effective and efficient. This necessitates the need to incorporate new advancements and technologies in educating our young orthodontists.

The orthodontics office is moving toward a digital workflow with intraoral scans, 3D imaging, digital tooth set-ups, 3D printers, and CAD/CAM appliances.

As technology evolves, it may behoove patients and orthodontists to enter the digital age, where 3D imaging, digital treatment planning, and CAD/CAM appliances are standard of care.

Digital technologies hold promise for improving treatment, but for change to occur, orthodontists must effectively integrate them into practice workflows while providing feedback for improvement. More training is indicated to ensure that providers are confident and successful in treating diverse patient pools with these technologies.

For many years, several studies have attempted to identify trends and evaluate new developments in orthodontic education. However, there are no studies investigating how well-prepared orthodontic residents are to provide orthodontic treatment with clear aligners and manage the digital workflow for in-house fabrication of clear aligners.

PRESENTED BY DR. SONALI REHIL AT THE ROSEMAN UNIVERSITY RESEARCH SYMPOSIUM, HENDERSON, NV ON APRIL 14, 2021.

## OBJECTIVES

The goal of the study is to investigate the extent to which Orthodontic graduate students are being trained and educated in utilizing the latest technology available for the fabrication and Orthodontic treatment with clear aligners. This information may lead to identifying gaps in the Orthodontic education curriculum, which could eventually lead to modification of the orthodontic graduate program course work to address these gaps. Thorough training and education of the technology used in clear aligner therapy, common 3D technologies, and fabrication will make the residents more confident and competent in using clear aligners in their future practice. Our research questions are:

1. Are Orthodontic residents being provided training and education to allow them to confidently provide clear aligner therapy to their patients?
2. Are Orthodontic residents being introduced to the latest 3D technology involved in the fabrication of clear aligners in-house and its application in other areas?
3. Do the Orthodontic residents have confidence in providing clear aligner therapy to their future patients?

## METHODS



1. Develop Survey
2. Distribute and Collect Survey
  - a. Qualtrics used to compose and administer the survey
  - b. The American Association of Orthodontists will distribute the electronic survey invitation (via Partners in Research Program)
  - c. The survey will be active for a period of 2 months from the time of 1st invitation. A general reminder email will be sent out 2 weeks after the first invitation to increase participation
3. Analyze and interpret the results using the Statistical Package for the Social Sciences (SPSS) version 25.

## HYPOTHESIS & VARIABLES

- Descriptive studies only describe the current state of a variable, so there is no presumed cause and effect, and therefore, no independent and dependent variables
- Descriptive Statistics:
  - Which year in residency program
  - Didactic knowledge of clear aligners
  - Clinical experience with clear aligners
  - Experience with latest technology involved with clear aligner treatment and fabrication

## RESEARCH DESIGN & SAMPLE

- Cross-sectional Survey
- Web-based survey distributed by AAO to list of emails of Orthodontic residents enrolled in all 67 CODA accredited Orthodontic residency programs in the USA and Canada

## INCLUSION & EXCLUSION CRITERIA

- Inclusion criteria: Graduate Orthodontic residents enrolled in enrolled in all 75 CODA accredited Orthodontic residency programs in the USA
- Exclusion criteria: Practicing Orthodontists

## STATISTICS

Data will be analyzed with SPSS statistical software, version 25.0. Frequency and proportion of similar responses will be calculated for each item on the questionnaire. Pearson's Chi-Square test will be conducted to study the associations between categorical variables. We are hoping that the results of this study can give us a clear picture of the experience and education of residents in graduate orthodontic residency programs. comparison procedure.

## RESULTS

No results or conclusions have been made at this time because the data collection process is currently ongoing.

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