Model Validation of Size Guides for Fitting Molar Bands

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NEMOURS CHILDREN'S HEALTH

Purpose

- To create and validate size guides for fitting Denovo® space maintainer bands to 3M™ stainless steel crowned teeth.
- The objective is to decrease waste and increase efficiency as many hospital-based programs are not reprocessing tried in bands, and multiple trials can increase appointment duration for children

Methods

- Nemours' IRB exemption #18809038
- Two pediatric dentists created size guides for general purpose molar bands (BSG) , and band and loops (BLSG)
- Blinded to the size guides, 8 volunteer pediatric dentists and residents fit bands of a randomized subset of stainless steel crowned primary molar typodont teeth, and the final size chosen was recorded (DBF)
- The number of fit attempts to obtained DBF was also recorded
- Dentist "best fit" (DBF) was analyzed against the previously created size guides (BSG) and (BLSG)

Results and Discussion

- Regression of DBF on BSG (Fig.1): intercept of -0.24, slope of 1.00, and explained variation R^2=99.1% (ICC .997)
- Regression of DBF on BLSG (Fig. 2): intercept of 0.19, slope of 0.99, and explained variation R^2=99.2% (ICC .998)
- Volunteer dentists averaged 2.7 fit attempts to find their best fit molar band
  - 1.1 attempts saved when compared against using band guide
- Volunteer dentists averaged 2.3 fit attempts to find their best fit band and loop
  - .7 attempts saved when compared against using band and loop guide

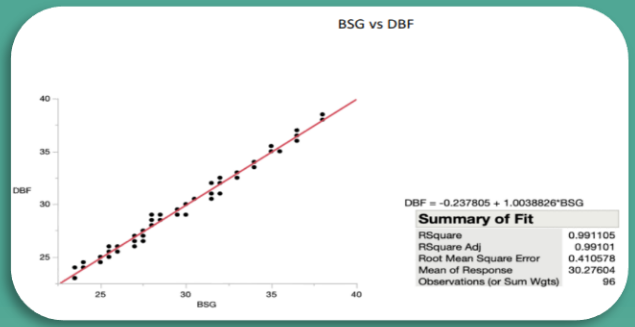

Figure 1

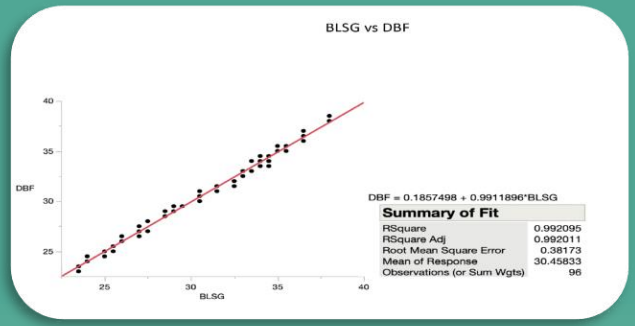

Figure 2

- Both molar band, and band and loop size guides were validated by volunteer dentists
- Using the size guides equated to an average savings of $5.27 and $5.46 per treated tooth, respectively, for programs that recognize these products as single-use
- These guides have the potential to decrease chair-time by limiting fit attempts
- These guides have potential to assist providers with choosing a starting point for band sizes when stainless steel crowned teeth are the abutments

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