**Purpose**

The purpose of this evaluation is to report on the clinical performance of **BruxZir Solid Zirconia Crowns and Bridges** at four years.

**Clinical Evaluation Protocol**

A total of 1,392 **BruxZir Solid Zirconia Crowns and Bridges** restorations have been placed over the past 56 months. Nine hundred and thirteen (913) restorations were recalled over four months including: single crowns (84%), 7% of which were implant crowns, and 16% that were 3- and 4-unit bridges (Figure 1). Of the 913 recalled restorations, 5% were anterior crowns and 95% posterior crowns.

**Clinical Evaluation Protocol**

**BruxZir Solid Zirconia Crowns and Bridges** restorations were evaluated in the following categories: esthetics, resistance to fracture/chipping, resistance to marginal discoloration, and wear of zirconia and opposing dentition.

**Restorations were evaluated on a 1-5 rating scale:**
- 1 = poor
- 2 = fair
- 3 = good
- 4 = very good
- 5 = excellent

**Fig. 1: Distributions of Restorations at 4-year Recall.**

- 1,392 restorations have been placed over the past 56 months.
- 913 restorations were recalled over four months including: single crowns (84%), 7% of which are implant crowns, and 16% that were 3- and 4-unit bridges.

**Fig. 2: Age of Restorations at 4-year Recall.**

- All restorations were cemented with adhesive and self-adhesive resin cements. The majority (85%) of the restorations were fabricated by Glidewell Laboratories, while 15% were fabricated by Apex Dental Milling. Of the 913 recalled restorations, 18% were over 4 years old, 35% were between 3 and 4 years old and the remaining 47% were less than 3 years old.

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**BruxZir bridge at 4 years.**

BruxZir received a **98% clinical performance rating at 4-year recall.**
Clinical Observations

Esthetics
The esthetics of BruxZir Solid Zirconia Crowns and Bridges was rated excellent (Figure 3), based on the consistency of the shades and a comparison of the esthetics to other monolithic zirconia restorations. BruxZir tends to be less opaque than other zirconia restorations. Only 19 (2%) of the BruxZir restorations received a rating of 4. BruxZir restorations were not compared with layered ceramic restorations. BruxZir restorations are perfect for patients looking for more monochromatic and whiter teeth like a B1 shade. The new BruxZir 16 pre-shaded zirconia and Anterior BruxZir further improve esthetics. Note: THE DENTAL ADVISOR is now beginning a one-year recall of Anterior BruxZir restorations.

Resistance to Fracture/Chipping
Chipping and fracture of BruxZir Solid Zirconia Crowns and Bridges single crowns have been practically non-existent (Figure 3); three failures (0.3%) were observed. A second molar crown fractured, but failure was likely due to a lack of occlusal clearance and insufficient reduction. Having less than 1 mm of clearance is not recommended for molars. Two implant crowns on lower second molars fractured and one had to be replaced. The failure was again due to very low clearance and insufficient space due to implant placement. In one case, the abutment also failed. None of the three- or four-unit bridges fractured. THE DENTAL ADVISOR has been documenting the failure of ceramics for over 30 years and BruxZir has by far the lowest failure rate at four years.

Resistance to Marginal Discoloration
Only five of the BruxZir Solid Zirconia Crowns and Bridges restorations (0.5%) exhibited slight marginal discoloration at four years (Figure 3). The opacity of the crowns helps camouflage most staining or microleakage. Also staining is a function of the bonding agent or cement rather than the zirconia.

Wear Resistance
Almost no wear was observed on BruxZir Solid Zirconia Crowns and Bridges restorations and very minimal wear was observed on opposing natural dentition at four years (Figure 3). More wear was visible on gold crowns opposing BruxZir restorations.

Retention
Thirty-nine crowns (2.8%) out of the 1392 BruxZir Solid Zirconia Crowns and Bridges crowns debonded and required recementation (Figure 3). This debonding rate is slightly higher (2.8% vs 2.0%) when compared to non-zirconia crowns that THE DENTAL ADVISOR has documented over time. Regular use of zirconia primers could result in a reduction of the debonding rate.

Conclusions
Over the four-year evaluation period, BruxZir Solid Zirconia Crowns and Bridges have proven to be excellent restorations with respect to esthetics and dependability. BruxZir Solid Zirconia Crowns and Bridges received a 98% clinical performance rating.

“I have been using BruxZir crowns for almost five years and I have not been disappointed - neither have my patients. It is a great value.”