Pulpdent Corporation
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Description
Bioactive restorative materials are a relatively new concept in dentistry. They are restoratives that are reported to release more fluoride than glass ionomers. They also react to pH changes in the mouth and in the process release and uptake calcium, phosphate and fluoride ions, thus helping maintain the chemical integrity of tooth structure. ACTIVA is available in two formulations. ACTIVA BioACTIVE-RESTORATIVE is more viscous and delivered via a dual-barreled syringe in a delivery gun. ACTIVA BioACTIVE-BASE/LINER is less viscous and dispensed via an automix syringe. Both delivery systems are easy to use and designed to be dentist friendly.

Purpose
The purpose of this clinical evaluation was to determine the properties of ACTIVA BioACTIVE-RESTORATIVE restorations at placement as well as to monitor its performance clinically at six months.

Clinical Protocol
A total of 117 ACTIVA BioACTIVE-RESTORATIVE restorations were placed in 58 patients. These included anterior and posterior restorations (Figure 1) with one, two, three and four surfaces (Figure 2). Sixty-six percent of the restorations were placed with etch followed by the application of a bonding agent. Thirty-four percent of the restorations were placed directly after etching the tooth (without the application of a bonding agent).

The restorations were evaluated at placement for ease of handling, ease of finishing and polishing, ease of adjusting, esthetics, and lack of postoperative sensitivity. Each category was rated on a 1 to 5 scale: 1=poor, 2=fair, 3=good, 4=very good, and 5=excellent.
Clinical Observations at Placement

Ease of Placement
One hundred fifteen ACTIVA BioACTIVE-RESTORATIVE restorations received an excellent rating of 5, while two restorations received a rating of 4. In one case, the material was runny. In the second case, the material began to set prematurely.

Ease of Finishing and Polishing
All 117 restorations received an excellent rating of 5 for ease of finishing and polishing.

Ease of Adjusting
One hundred fourteen restorations received an excellent rating of 5 for ease of adjusting while three restorations received a rating of 4.

Esthetics
One hundred fourteen out of 117 restorations received an excellent rating of 5. Three restorations received a rating of 4 because the A3.5 shade looked more like an A2 shade.

Clinical Observations at Six Months
Thirty of the ACTIVA BioACTIVE-RESTORATIVE restorations were available for recall at six months. The following parameters were assessed: retention, resistance to marginal discoloration, wear resistance, esthetics, resistance to fracture/chipping, and lack of postoperative sensitivity (as reported by patients). Categories were evaluated on a scale of 1 to 5: 1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent.

Retention
Retention was rated excellent. There were no debonds observed at six months.

Resistance to Marginal Discoloration
Resistance to marginal discoloration was rated excellent. There were no observations of marginal staining at six months.

Wear Resistance
Wear resistance was rated excellent. There were no observations of wear at six months.

Esthetics
Esthetics was rated excellent. The restorations maintained excellent color match with the surrounding tooth structure at six months.

Resistance to fracture/chipping
Resistance to fracture and chipping was rated excellent. There were no observations of fracture or chipping at six months.

Lack of Postoperative Sensitivity
Lack of postoperative sensitivity was rated excellent. Two of the 117 restorations were replaced shortly after placement. In one case a sizable void was noted in the restoration when the x-ray was taken. In the second case the tooth was very sensitive and required root canal treatment. The tooth that required endodontic treatment was a deep restoration and was likely not related to the choice of restorative material. There were no additional reports of postoperative sensitivity at the six-month recall.

Summary
Ninety-seven percent of the 117 ACTIVA BioACTIVE-RESTORATIVE restorations exhibited excellent esthetics at placement. The ease of placement, ease of finishing and polishing, ease of adjustment, and lack of postoperative sensitivity of the material were rated as excellent. ACTIVA BioACTIVE-RESTORATIVE restorations performed well at the six-month recall. THE DENTAL ADVISOR will continue monitoring these restorations over time.