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Evaluation of a Glass-ionomer sealant applied to erupting permanent molars in children.

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Background

Prior to full eruption, dental caries can already be established in the pits and fissures of partially erupted permanent molars (PEPM). The operculum and moisture control limit conventional sealant application. Glass-ionomer based sealants (GIS) may provide an alternative.

Methods

This UK practice-based study assessed the application of GIS on PEPM. Sixty patients (aged 6-15 yrs) had caries-free PEPM sealed with a GIS (Fuji Triage). 127 occlusal and 73 buccal surfaces were treated by a dental therapist and were followed up at least until full eruption. Further sealant was applied at review appointments if unsealed exposed pits or fissures were visible. Sealant retention, eruption stage, and presence of dentinal caries were recorded. Supplementary data was obtained by clinical diary, stakeholder meetings, and focus groups.

Results

At final follow up (mean 315 days) no sealed tooth had developed caries. At first review (mean 105 days) 89.5% of occlusal surfaces and 61% of buccal surfaces had complete retention of GIS. At 6 month review (mean 219 days) 85% of occlusal surfaces and 29% of buccal surfaces had complete retention of GIS. Clinician feedback emphasised ease of GIS application and care pathway; no adverse events occurred. Children and parents provided positive evaluation and support for further practice-based research.

Implications

This study showed high GIS retention on occlusal surfaces with less retention on buccal surfaces, which indicates a potential for caries prevention on PEPM. This work demonstrates the feasibility of GIS application by a dental therapist, with high acceptance by patients and parents.