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Citation	The 100th FDI Annual World Dental Congress, Hong Kong, China, 29 August-1 September 2012. In International Dental Journal, 2012, v. 62 suppl. 1, p. 19, abstract P016
Issued Date	2012
URL	http://hdl.handle.net/10722/186525
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Sealant and Topical Fluoride in Fissure Caries Prevention - 3-Year Results

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Aim: To investigate the effectiveness of topical fluorides and resin sealant in fissure caries prevention in permanent molars.

Material and methods: A 3-year trial with ethical approval was conducted among healthy schoolchildren aged 8–9 years who regularly used fluoridated toothpaste. They were randomly allocated into:

Group 1 – resin sealant;

Group 2 – silver diamine fluoride (SDF) solution, annual application;

Group 3 – NaF varnish, semi-annual application; and

Group 4 – placebo control.

Development of caries into dentine was evaluated semi-annually over three years by a single blinded examiner.

Results: Over 95% of 501 children (50% boys, 1539 molars) were followed for 3 years. Sealant placement significantly decreased the hazard (95% CI of hazard ratio: -1.81, -0.08) of developing fissure caries while SDF (95% CI: -1.16, 0.37) and NaF (-0.69, 0.75) did not.

Conclusion: Sealant placement was effective in fissure caries prevention in this child population. No conclusion on topical fluoride applications could be drawn.