



### Objective

To compare the incidences and progression of dental caries at proximal enamel surfaces in contact with RC and RMGIC Class II restoration.



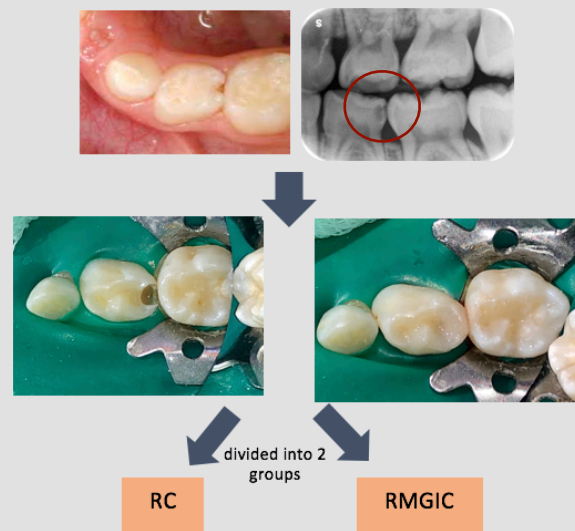
### Background

The proximal surfaces which adjacent to the Class II restoration had higher caries risk than normal tooth surface. Thus, if the restoration can release fluoride, it will help to reduce the incidence of caries. Although the results from laboratory experiment show that fluoride releasing materials can reduce the incidence of caries progression in the adjacent proximal surface contacting with class II restoration but there was not enough clinical experimental results.

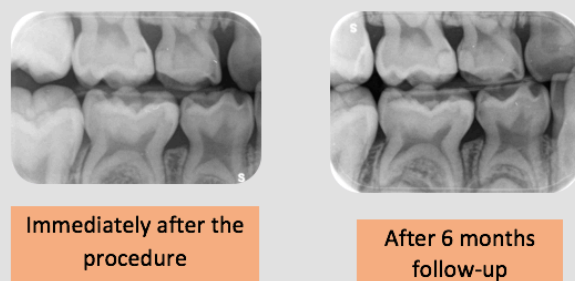


### Material and method

Subjects were selected from patients age between 3-11 years old who had unrestored proximal enamel surface in contact with class II cavity at Pediatric clinic, College of Dental Medicine, Rangsit University.



Bitewing radiographs were taken immediately after the procedure and at after 6 months follow-up visit.



The dmft/DMFT scores and degree of caries progression at the proximal enamel surface adjacent to class II restoration in clinical and radiographic by ICCMS™ were record and analyzed statistically by using independent samples T-test and Fisher's Exact Test



### Data analysis

The caries incidence/progression were reported as percentage for descriptive analysis. The caries incidence and caries progression data were analysed by SPSS version 22 using Fisher's Exact Test to compare the performance of caries preventive effect of RMGIC and RC. The independent T-test was used to assess the difference in caries experience between the RMGIC and RC group.



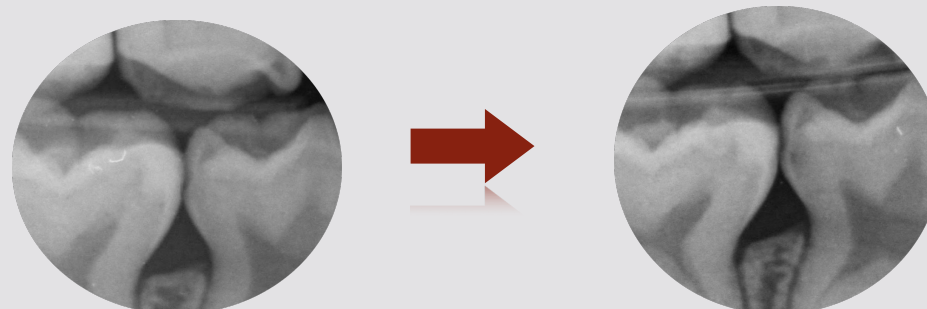
### Result

At the follow up visit (5-11 months), 57 proximal enamel surfaces adjacent to class II restoration were re-evaluated (27 surfaces, 30 surfaces in RC and RMGIC groups). The caries progression in proximal surfaces of the adjacent tooth in contact with RC versus RMGIC restoration were statically significant difference (P-value < 0.05). The caries experience was no statically significant difference in RC versus RMGIC groups and no statically significant difference in affected the caries progression (P-value > 0.05).

Base Line ICCMS™ scoring	RC (n=27)		RMGIC (n=30)	
	No progress (n=19)	Progress (n=8)	No progress (n=28)	Progress (n=2)
Sound	5 (18.51%)	1 (3.70%)	2 (6.67%)	0 (0%)
RA1	14 (51.85%)	4 (14.81%)	26 (86.67%)	0 (0%)
RA2	0 (0%)	3 (11.11%)	0 (0%)	2 (6.66%)
Total	19 (70.37%)	8 (29.63%)	28 (93.34%)	2 (6.66%)

Fisher's Exact Test P=0.035 < 0.05

RA1: Radiolucency in the outer 1/3 of the enamel  
RA2: Radiolucency in the inner 1/3 of the enamel ± DEJ



RA2 (inner 1/2 of enamel)

RA3 (outer 1/3 of dentin)



### Conclusion

Class II RMGIC restoration yields statically significant higher effect to reduce caries progression on proximal surfaces of adjacent tooth than Class II RC restoration.

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