

Charges for sealants and one-surface, posterior permanent restorations: three years of insurance claims data

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SHORT COMMUNICATION

Introduction

Sealants have become an important vehicle for preventing pit and fissure caries.¹ Dentists have increased their use of sealants,²⁻⁴ yet the percentage of children who receive this service is still rather small.^{5, 6} This study explores the charges for dental sealants and one-surface, permanent posterior restorations for each state over a three-year period. This information will be useful for cost-effectiveness analyses of preventive and corrective dental procedures, especially in an era of declining dental caries.

Methods

Data claim files from a large, private, dental insurance carrier for all children (> 1.3 million) between 5 and 15 years old for a three-year period (1986-1988) were available for this quasi-experimental analysis. By definition, all children within this data base had dental insurance coverage and had at least one claim. The following variables were used in the analysis: zip code of the employee; service billings; dates of dental service; and the American Dental Association dental procedure code [sealant - 01350/01351; permanent tooth, one-surface (posterior) restoration (OSR) - 02140].⁷ All billed services were included regardless of reimbursement. No assumptions were made on whether the sealants or restorations were original or replacements. During these three years there were billings for 249,182 sealants and 456,009 OSR.

For each state, and each of the three years, a mean, unweighted charge was determined for all sealants and OSR. Calculations neither differentiated between types of providers (i.e., general vs. pediatric dentist), nor whether the provider performed both services. SAS[®] software (SAS Institute, Inc., Cary, NC) was used to manage subfiles and to perform the statistical manipulations.⁸ Pearson coefficient correlations and ordinary least squares regression analysis were used to estimate the effect of mean sealant to OSR charge during these three years.

Results

The mean one-surface restoration charge for states is more than double the mean sealant charge during each of the three years (Table). For this insurance carrier, only three states have an annual increase in the ratio of sealant charge when compared to OSR (i.e., the mean

sealant charge increases faster than the OSRs for 1987 and 1988), while 13 states have an annual decrease. The regional group of New York, New Jersey, and Pennsylvania has the highest cost ratio; parts of the farm belt and the Rocky Mountain states have the lowest. Annualized percentage changes in the sealant and OSR mean charges for the states are shown in the figure, page 406. There is a wider dispersion of the percentage changes for the sealants than one-surface restorations. The most common per cent increase is lower for sealants (11 states between 4 and 6%) than OSR (19 states between 6 and 8%). The largest annual per cent increases for OSR are concentrated in the New England and other Northeast states; the states with large sealant increases are more varied.

Pearson correlation coefficients between mean sealant charges and mean OSR charges nationally decrease over time (1986 - 0.460; 1987 - 0.436; 1988 - 0.409). From ordinary least squares regression analysis, 90.7 and 97.1% of the 1988 mean charge is explained by the 1986 and 1987 charges for sealants and permanent tooth, posterior OSRs, respectively. Because of the variability of market share by this dental insurance carrier, the correlations and regression analyses were recalculated after deleting the 10 states where fewer than 500 seal-

Table. Mean charges (\$) for sealants and one-surface restorations

		<i>Sealants</i>	<i>One-Surface Restorations</i>
1986	Mean	16.26	36.40
	SD	4.28	7.05
	Median	16.10	34.91
	Range	11.63 - 38.91	28.48 - 73.30
1987	Mean	17.00	37.95
	SD	3.82	7.38
	Median	16.29	36.56
	Range	12.26 - 36.18	30.69 - 76.19
1988	Mean	17.80	41.00
	SD	3.74	7.34
	Median	17.30	39.36
	Range	12.98 - 32.45	32.31 - 76.79

Per Cent Change 1986 – 1988

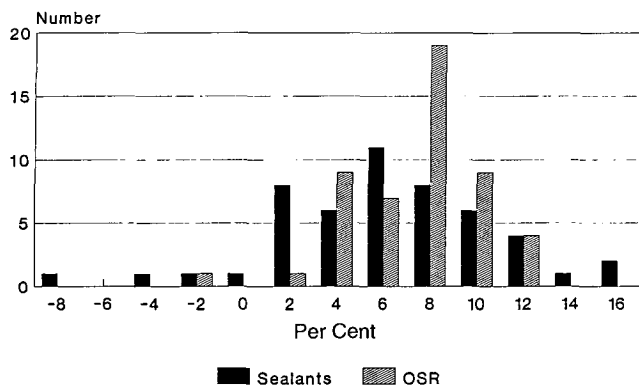


Figure. Annualized percentage change in mean sealant and one-surface restoration charges.

ants were billed (in 1988). There is a remarkable similarity between the findings.

Discussion

Previously published fee schedules indicate that the average charge for a sealant is approximately one-half the charge of an OSR.^{9, 10} The current findings indicate that this ratio actually may be decreasing over time. That is, within this data set, the increase in mean charge per state for dental sealants is, on average, proceeding at a slower rate than OSRs.

There is a relative stability of restorative charges as a proportion of total dental expenditures, even with the decline in dental caries.¹¹ Preventive dental services, such as sealants, may be subject to a different pricing analysis when fee schedules are updated. The price differential between sealants and OSRs undoubtedly

will become broader with the increased use of composite resins for posterior teeth.

Further exploration with other commonly provided preventive services for children (e.g., topical fluoride treatment) should address whether these fees keep pace with OSRs or, like dental sealants, increase at a slower rate. Current fiscal data concerning these dental procedures can provide insight into any changes for cost-effectiveness comparisons.

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