PEDIATRIC DENTISTRY

Costs of preventing dental caries

BACKGROUND

The prevention of dental caries is considerably more cost-effective than the treatment of carious lesions, which is both time and resource intensive and does not prevent future disease. The 2 methods for preventing dental caries in children are pit and fissure sealants (PFS) and fluoride varnishes (FV). Both have been associated with caries lesions prevention and both are recommended for children and adolescents. An analysis was done to determine which strategy is the most cost-effective in preventing dental caries lesions on the occlusal surface of the first permanent molar in children.

METHODS

A Markov model was used to simulate the progression of dental caries on the first permanent molar's occlusal surface in a hypothetical cohort of children over the course of 9 years. The cost-effectiveness data for resin-based PFS and 5% sodium fluoride (NaF) varnish in preventing the development of dental caries in this tooth were compared to the data for a no-intervention strategy. Two scenarios were used to assess cost-effectiveness: a base case scenario and a scenario in which a failed PFS was replaced. The Incremental Cost-Effectiveness Ratio (ICER) was calculated for PFS and FV.

RESULTS

Base Case Scenario

PFS strategy cost $80.17 more than no intervention and prevented 51% of the first episodes of caries compared to no intervention. The ICER was $156.87 per first episode of caries lesion averted over 9 years. FV was more expensive and 31% less effective than PFS.

Replacement Scenario

The incremental cost of the PFS strategy fell to $61.25, and the incremental effectiveness increased from 51% to 54%. ICER changed to $113.00 per first episode of caries lesion averted over 9 years. The FV strategy remained both more expensive and less effective than PFS.

DISCUSSION

Applying PFS was more effective in preventing the first episode of caries and less expensive than applying FV twice a year. With the emphasis on containing costs and getting greater results for each dollar spent, PFS should be recommended for children who are at higher risk for developing caries and who use dental services less often.

Clinical Significance

Persons who plan caries prevention programs should take note of the information found in this study. Currently the United States Preventive Services Task Force (USPSTF) recommends that primary care clinicians apply FV to the primary teeth of all infants and children beginning when the primary teeth begin to erupt. Although FV can cover all the surfaces, is easy to apply, and can be applied at any age, PFS is more cost-effective when the prevention of dental caries lesions is considered. Children of lower socioeconomic families, who are not only at higher risk for developing caries but who are also more likely to be covered by public programs such as Medicaid, should especially be covered by PFS rather than FV.

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Glass ionomer cement versus composite resin in primary tooth restorations

BACKGROUND

Single studies find differing results for the clinical performance of glass ionomer cement (GIC) and that of composite resin (CR) in Class II restorations in primary teeth. A literature search was done to identify randomized controlled trials that compared the 2 materials and permit meta-analysis of the results.