Is Preventive Dental Care for Young Children Overrated?
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As much as I want to "believe" that early dental preventive practices can prevent restorative dental care later in life, the evidence is growing that this may not be the case.


The American Academy of Pediatrics, along with other similarly thoughtful medical groups, endorses the practice of preventive dental care for children starting at 6 months of age. However, the evidence base for these practices is slim, and the current article adds further doubt to some of these recommendations.

This study is about as meticulous in design and reportage as one can be in a study involving retrospective analysis of an administrative database. I've commented many times previously about how administrative databases can be misleading, because they rely on charges submitted by practitioners and hospitals, with essentially no clinical details available. At best, the findings from such studies can be used to guide the design of more definitive prospective research trials. However, there are a couple reasons I'm impressed with these researchers' efforts.

First, they employed a statistical technique called propensity scoring. I've mentioned this term in the past, once for a study of breastfeeding by mothers receiving anticonvulsant therapy, and more recently for a study of steroids for respiratory distress syndrome. I didn't elaborate very much on the technique at those times, so let me explain a bit further in a few sentences. Short of a prospective, randomized controlled trial, looking for the impact of a particular exposure or treatment on clinical outcomes can be subject to all sorts of confounding variables. In the case of this dental study, it would be primarily selection bias: kids receiving preventive dental interventions might differ from those not receiving such care. Maybe they had better access to care, or maybe they already had some early evidence of dental caries and thus were shunted to receive dental interventions sooner (this latter point also can be termed protopathic bias). Propensity scoring is a statistical method that seeks to control for these sources of bias by matching study subjects based on these potential confounders, looking for associations with the outcome of interest other than the main item of interest (receipt of preventive dental services in the current study). Statisticians will then use a variety of tools, including logistic regression, neural networks, or recursive partitioning, to examine these confounding variables. If all this sounds confusing but you want to learn more, check out this nice article using a smoking/asthma question. Still, propensity scores can only go so far in addressing limitations of studies. The best answer to the question will be found in an adequately powered prospective randomized controlled trial.
Another nice feature of this article is the authors' discussion of their study's limitations, 6 in all. This section would be a good example for young (and probably experienced, too!) investigators to read. Too often, scientists appear to be in the business of "selling" their research to the public, sometimes at the expense of glossing over study limitations.

With regard to preventive dental services for infants, we are at a stage of "absence of evidence" to support our current recommendations. Note that this is very different from "evidence of absence," where we have enough evidence to determine that a particular intervention doesn't work, and we should abandon it. I would certainly hope for a randomized prospective trial for some elements of preventive dental care, but I also realize that this would be a very difficult and expensive undertaking. Still, it just might be worthwhile if it focused our efforts on preventive practices that truly work. For now, I would stick with the AAP guidelines with the understanding that they could be based on very weak underpinnings.