

VIEWPOINT

Too Much Dentistry

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Invited Commentary

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Dental diseases and procedures are common, troublesome, and expensive, exceeding spending on other major health conditions, such as diabetes, ischemic heart disease, hypertension, dementias, and breast cancer, in the US. Dental issues are relevant for internists because unmet dental care needs can be painful for patients. Excluding teeth from medical health care is arbitrary.

Evidence-based medicine, a movement that gained prominence in the 1990s, has profoundly affected the practice of medicine. Unfortunately, little progress has been made on using data from clinical trials to determine best practices for dental care. Instead, most dental care relies on practice patterns influenced by the economic pressures of running a dental practice, dentists' professional training and opinions, and patients' expectations, all of which tend to favor excessive diagnoses and interventions. The result is that while many people who have low income go without any dental care, those who can pay are subjected to overdiagnosis and overtreatment.

Overdiagnosis

Overdiagnosis occurs when conditions that will never cause harm are identified. Unnecessary treatments resulting from overdiagnosis subject patients to potential harm and waste valuable resources that could be used for necessary and effective treatments.

For example, dentists may treat early noncavitated caries lesions, aiming to prevent more advanced lesions, such as dentine cavities. A noncavitated caries lesion is a demineralized enamel spot (white spot lesion) without evidence of cavitation. The majority of white spot lesions will not progress,¹ and there is no evidence that early treatment, except with fissure sealants, is generally more effective than no treatment in preventing dentine cavities.² Paradoxically, these sealants are frequently overlooked or underused by dentists. Dental cavities are routinely filled in children, despite evidence that dental pain and infection rates due to dental cavities in primary teeth are similar (about 40%) in children who are randomized to teeth being filled or not being filled.³

Decline in Caries and the Impact on Dentists' Workload

In the 1970s, there was an unexpected, extraordinary decline in the number of cavitated caries lesions seen in dental patients.⁴ This decline in the number of patients' cavitated caries lesions affected dentists' workload and has played a role in overdiagnosis and treatment in dentistry so that dentists can support their practices. This financial need led to more recommendations for regular 6-month visits.⁵ Two randomized clinical trials failed to demonstrate that 6-month

intervals between dental checkups result in better oral health compared with longer intervals (up to 24 months), which led the authors of a Cochrane review to conclude: "Whether adults see their dentist for a check-up every 6 months or at personalized intervals based on their dentist's assessment of their risk of dental disease does not affect tooth decay, gum disease, or quality of life. Longer intervals (up to 24 months) between checkups may not negatively affect these outcomes."⁶ Nonetheless, the standard for dental visits remains every 6 months.

Scaling and Polishing

Another commonly performed procedure is scaling and polishing to prevent periodontitis, a common condition in middle-aged persons. Scaling removes plaque and calculus from the crown and root surfaces of the teeth and is performed using hand or ultrasonic scalers. Polishing, which entails the mechanical removal of extrinsic stains and deposits, is typically done using a rubber cup or bristle brush loaded with a prophylaxis paste.

The assumption has been that scaling and polishing can prevent gingivitis and periodontitis, thus potentially preventing tooth loss, pain, and mobility. However, to our knowledge there are no published clinical trials assessing these outcomes.⁷ The existing evidence only evaluates short-term surrogate outcomes. It suggests that treating periodontitis, specifically through root planing, leads to a slight enhancement in the gum-to-tooth attachment level among individuals with moderate to severe periodontitis.⁸ However, there does not appear to be any advantage to scaling and polishing for adults without periodontitis.⁹

Changing Financial Incentives

The prevailing dental economic model based on fee-for-service creates an environment of dental overdiagnosis and overtreatment. At the same time, many persons who do not have dental insurance cannot afford to pay out of pocket for dental care, creating a situation where people with low income or who are part of a racial and ethnic minority group are often underdiagnosed and undertreated. A value-based model, in which dentists are paid to maintain oral health rather than to deliver treatments like fillings, cleanings, and fluoride applications, could be more positive for oral health. A study conducted in Rio de Janeiro (and coauthored by one of us [P.N.]) found that, among patients without treatment indications, an average of 2 teeth were treated during a 6-month follow-up period. This number increased to 3.6 teeth if the patient had changed dentists.¹⁰ A clear need exists for trials to compare different methods of paying dentists to assess the impact on oral health and on overtreatment and undertreatment.

What Is the Way Forward?

We do not want to give the impression that dental care is not important. On the contrary, dental pain, oral abscesses, broken teeth, and inflamed tissues surrounding the teeth are common presentations to medical professionals, especially those working in urgent care settings. Similarly, good dentition is nutritionally important for eating a full diet and psychologically essential to a person's sense of appearance. However, dental procedures should be based on effectiveness and safety.

It is true that many important dental outcomes (eg, tooth loss) may take a long time to assess. On the other hand, the

human mouth offers an easy trial design in which some procedures, such as filling a tooth, could be determined by randomization when there is more than 1 tooth in the mouth with a cavity. Other common abnormalities can impact adjacent teeth (eg, periodontitis) and require a refined design (eg, randomization to quadrants or sextants).

Identifying which dental procedures are beneficial and ensuring that relevant dental associations update their guidelines accordingly provide an opportunity to allocate resources to those who need them the most. The aim is to reduce overdiagnosis and over-treatment while increasing necessary treatment.

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