Maas Thoughts on

Assertions from Colorado Dentists Who are

Unsupportive of Policies to Support the SMILES Program

Questions from SMILES Program proponents based on discussion of legislation “sunset reviews” with Colorado dental leadership:

1. One of the dentists said the literature since 2007 uses ITR – do you have more recent examples of literature using ART?
2. We have been saying there is no evidence to suggest ITR is temporary – is this correct? And how would you back it up?
3. The dentists kept using the term “definitive” to describe what they do. What does that mean? Does that mean any alternative treatment is inferior, or simply serving a different purpose?

Answers:

1. That is kind of an ignorant statement unless this dentist thinks we can only learn from experience of U.S. dentists and research conducted in the U.S. since 2007. I could only find one article that provide comparison of ART and ITR in any detail. Of the 86 references in the 2019 article (Saber, Dentistry Journal), only a couple use the term Interim Therapeutic Restoration. I believe the term was given to the technique referred to globally as Atraumatic Restorative Technique by AAPD to encourage its acceptance, BUT to acknowledge that they should not be considered “definitive” restorations. AAPD policy does recognize that sometimes an ITR is the best treatment for a patient at a particular time. However, while AAPD has Best Practices for Pediatric Restorative Dentistry, I am not aware that it has provided criteria for when an ITR should be replaced with a more durable (which is easier to determine objectively than “definitive”) restoration.

I do not believe the term ITR will catch on in the rest of the world where the technique is recognized as a way to control caries in a minimally traumatic way, but I do believe dentists globally will continue to gain experience with the approach and publish the results of their studies using the term Atraumatic Restorative Technique.

The article by Saber et al tries to distinguish the two techniques. The journal is not particularly prestigious and I don’t know the authors, but I’m going to accept that they have done a fairly thorough job of reviewing evidence and explanations, subject to whatever biases they have from their own education. Note that they affirm that the technique and restorative materials used are the same for both ART and ITR. Only the PURPOSE of the service is different. There primary objective criteria for recommending replacement of ITR within 6 months is: “Teeth treated with ITR should be managed with more definitive restorations within six months of the placement to avoid an elevation in the amount of oral microbes to pre-treatment levels.” The AAPD policy on ITR also mentions that levels of cariogenic oral bacteria return. I am not aware of any treatment guidelines in the U.S. that recommend replacement of restorations based on level of oral microbes, so I’m at a loss to understand why this criterion would guide replacement of ITRs.

1. If the decision to call something an Interim Therapeutic Restoration, rather than an ART restoration, is based on the purpose and intention that it not be considered the definitive care, then by definition we are shouting into the wind to say that an ITR is not temporary. The “failure rate” of ITRs will be artificially low if dentists feel obliged to remove and replace them at first opportunity.

The AAPD policy statement on ITRs notes that they facilitate a step-wise excavation of caries, which Colorado dentists may interpret as a recommendation that the ITR be replaced for further excavation of caries. However, the AAPD Best Practice for restorative care notes: “There is evidence that partial (one-step) excavation followed by placement of final restoration leads to higher success in maintaining pulp vitality in permanent teeth than stepwise (two-step) excavation.”

I believe the criteria for replacing an ITR should be when it is no longer serving the purpose of protecting the tooth from further damage from caries. Alternatively, if the patient has presented to a dentist for other services and has time, resources, and inclination for the ITR to be replaced with a more durable restoration, that is a reasonable course of action. However, the regulation that requires the hygienist to direct a patient to see a dentist to monitor the adequacy of an ITR, at best, or automatically replace it, at worst, rather than have it monitored by the hygienist in the community setting, cannot be justified.

It would be more objective to use the USPHS criteria for restoration quality (used with modification since the mid-1960s) which evaluate restorations on a number of criteria. I suppose a dentist is free to plan replacement of any particular restoration with whatever criteria they want, including esthetics. I will argue that there is no urgency in replacing a restoration unless it is no longer protecting dentin from the cariogenic biofilm (plaque) or not functioning well (for example is allowing food to impact between teeth in a way that bothers the patient).

Here is what the AAPD Best Practices statement on Pediatric Restorative Dentistry says about restorations: “The benefits of restorative therapy include: removing of cavitations or defects to eliminate areas that are susceptible to caries; stopping the progression of tooth demineralization; restoring the integrity of tooth structure; preventing the spread of infection into the dental pulp; and preventing the shifting of teeth due to loss of tooth structure. The risks of restorative therapy include lessening the longevity of teeth by making them more susceptible to fracture, recurrent lesions, restoration failure, pulp exposure during caries excavation, future pulpal complications, and iatrogenic damage to adjacent teeth. Primary teeth may be more susceptible to restoration failures than permanent teeth. Additionally, before restoration of primary teeth, one needs to consider the length of time remaining prior to tooth exfoliation.” See <https://www.aapd.org/research/oral-health-policies--recommendations/pediatric-restorative-dentistry/>

This AAPD Best Practice statement was intended to guide initial placement of restorations, not repair or replacement, but I think the criteria are basically the same. I think it is important to note the acknowledgement that primary teeth may be more susceptible to restoration failures than permanent teeth. De Amorim’s systematic review and meta-analysis (Clin Oral Invest, 2018) has a section devoted to comparison of ART to conventional restorations which note: “It appears that it is difficult to achieve high restoration survival percentages in multiple-surface cavities in primary posterior teeth, independent of the treatment approach and restorative material used.

Glass ionomer is a filling material and there are many versions of it with different properties, just as there is quite some different variations of plastic (resin and composite) filling materials. (There is also some variation in amalgam, but unlike the other materials the technique would be identical regardless of the particular amalgam material.) Different types of GI filling material are better for some purpose than others, sometimes trading off durability for resistance to secondary caries (caries around the previous filling, which is a common problem with plastic fillings). Fuji IX seems to have a balance of characteristics that favor its use in ITRs, but other versions have their place as well, no doubt. Under ideal conditions, amalgam restorations last longer than any others, but amalgam is “out of favor”, and most dentists don’t get heartburn placing less durable composite fillings instead.

For the initial restoration of a tooth, less destruction of sound tooth tissue is needed for composites than amalgam, so composites are preferable, even if somewhat less durable than amalgam. The choice between using glass ionomer filling material versus composite depends on whether longevity is more important than protecting tooth from further decay. The studies I have shared with the SMILES programs indicate that for the first 3-4 years there is not much difference. It appears that there is no compromise on longevity of glass ionomer restorations for Class I restorations (filling surrounded by sound tooth tissue such as on the chewing surface of a molar or bicuspid).

Neither glass ionomer nor composites have comparable longevity for cavities on proximal and occlusal-proximal surfaces compared to Class I restorations, and my guess is that attention to technique is more important than the particular filling material used. Ironically, glass ionomer is less effective when the cavity being filled is either too large or too small, as a certain volume may be needed for strength. There may well be cases where a dental hygienist’s access to the cavity is so limited she can’t get enough glass ionomer into the cavity to restore the tooth, in which case SDF might be more effective to “buy time” until “definitive” restorative care can be provided. (We’ll really only know the success of the ITR technique in different circumstances (both patient and clinician) by getting experience with the technique, and we continue to assert than no harm is done by controlling decay progression this way regardless of how “temporary” it is before replacement is required.

1. Yes, we would all like to believe that we are providing “definitive” care and whatever negative outcomes there may be are the fault of the patient, not decisions that we made about where and when we would be willing to provide care. If care is measured at the patient level, rather than tooth level, we must consider the likelihood that the patient will access care at the time and place in which we are able to provide “definitive” services (as measured at the tooth level). If the patient is unable or unwilling to receive “definitive” services at the time and place convenient for the dentist, it can’t really be considered definitive, can it? I think we may be talking past one another. SMILES is a patient-centered approach to controlling decay and sustaining oral health. I think we should resist engaging in a debate about restorative technique in a context that only considers the tooth and ideal circumstances. We are treating people. People are not well served by advice that undermines their confidence in the care being provided to them, which I would measure both by the specific services received at this time and the promise that the dental care delivery system will continue to provide appropriate services to monitor the effectiveness of those services over time at a time and place convenient for the patient.

While we should be cautioned to not assert that the care being provided at SMILES sites is necessarily “definitive”, I think is wrong for either the state dental practice act or Medicaid policies to suggest that the services are so temporary and inadequate that there is urgency for anyone receiving either ITRs or SDF to seek traditional care at a traditional site. While SMILES sites may well encourage patients to seek care in dental clinics and provide case management services to facilitate that, the criteria for doing so should be the collaborating dentist’s assessment of the urgency of that need, not based on a misinterpretation of the name recently given to a restorative technique that has been successfully used and studied around the world since 1985.