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Policy on Interim Therapeutic Restorations (ITR) Alternative Restorative Treatment (ART)

Originating Council
Council on Clinical Affairs
Review Council
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2001
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Purpose
The American Academy of Pediatric Dentistry (AAPD) recognizes that unique clinical circumstances can result in challenges in restorative care for infants, children, adolescents, and persons with special health care needs. When circumstances do not permit traditional cavity preparation and/or placement of traditional dental restorations, or when caries control is necessary prior to placement of definitive restorations, use of an interim therapeutic restorations (ITR) or alternative restorative treatment (ART) may be beneficial. This policy will differentiate ITR from atraumatic/alternative restorative techniques (ART) and describe the circumstances for its use.

Methods
This policy is based upon a review of current dental literature. A MEDLINE search was performed using key words “dental caries”, “atraumatic restorative treatment”, and “glass ionomer cement”.

Background
Alternative/atraumatic restorative treatment techniques (ART), formerly known as atraumatic restorative treatment, is defined as “a dental caries treatment procedure involving the removal of soft, demineralized tooth tissue using hand instrument alone, followed by restoration of the tooth with an adhesive restorative material, routinely glass ionomer”. This technique may be modified by the use of rotary instruments. It has been endorsed by the World Health Organization and the International Association for Dental Research as a means of restoring and preventing caries in populations with little access to traditional dental care. In many countries, practitioners provide treatment in non-traditional settings that restrict restorative care to placement of provisional restorations. Because circumstances do not allow for follow-up care, ART mistakenly has been interpreted as a definitive restoration. ITR utilizes similar techniques, but has different therapeutic goals. Interim therapeutic restoration more accurately describes the procedure used in contemporary dental practice in the US.

ART ITR may be used to restore and prevent further decalcification and caries in young patients, uncooperative patients, or patients with special health care needs or when traditional cavity preparation and/or placement of traditional dental restorations are not feasible and need to be postponed. Additionally, ITR may be used for step-wise excavation in children with multiple open carious lesions, prior to definitive restoration of the teeth. The use of ITR has shown to reduce the levels of cariogenic oral bacteria (eg, mutans streptococci, lactobacilli) in the oral cavity.
Success rates for ART restorations depend on the material used, training of the operator, and extent of caries. Glass ionomer cement is the material of choice for ART because of its bonding to enamel and dentin, fluoride release, and ease of use. Resin-modified glass ionomer material has been shown to have a higher success rate than low-viscosity glass ionomer cements due to increased strength and greater resistance to loss. The ITR procedure involves removal of caries using hand or slow speed rotary instruments with caution not to expose the pulp. Leakage of the restoration can be minimized with maximum caries removal from the periphery of the lesion. Following preparation, the tooth is restored with an adhesive restorative material, such as self-setting or resin-modified glass ionomer cement. ART ITR has the greatest success when applied to single surface or small 2 surface restorations. Inadequate cavity preparation with subsequent lack of retention and insufficient bulk can lead to failure. Use of a slow-speed rotary instrument may be indicated to enhance cavity preparation and restorative retention. Follow-up care with topical fluorides and oral hygiene instruction may improve the treatment outcome in high caries-risk dental populations.

Policy statement
The AAPD recognizes ART as an acceptable treatment for the management of caries when traditional cavity preparation and/or placement of traditional dental restorations are not possible.

The AAPD recognizes ITR as a beneficial provisional technique in contemporary pediatric restorative dentistry. ITR may be used to restore and prevent dental caries in young patients, uncooperative patients, patients with special health care needs, and situations where traditional cavity preparation and placement of traditional dental restorations is not feasible. ITR may be used for caries control in children with multiple carious lesions prior to definitive restoration of the teeth.

References
8. Wambier DS, dosSantos FA, Guedes-Pinto AC, Jaeger RG, Simionato MRL. Ultrastructural and microbiological analysis of the dentin layers affected by caries lesions in