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Evidence-based Update of Pediatric Dental Restorative Procedures: Dental Materials

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Background: The science of dental materials and restorative care in children and adolescent is constantly evolving, and the ongoing search for ideal restorative materials has led to plethora of research. **Aim:** To provide an evidence base to assist dental practitioners choose appropriate restorative care for children and adolescents. **Study design:** This evidence-based review appraises this literature, primarily between the years 1995-2013, for efficacy of dental amalgam, composites, glass ionomer cements, compomers, preformed metal crowns and anterior esthetic restorations. The assessment of evidence for each dental material was based on a strong evidence, evidence in favor, expert opinion, and evidence against by consensus of the authors. **Results:** There is varying level of evidence for the use of restorative materials like amalgam, composites, glass ionomers, resin-modified glass-ionomers, compomers, stainless steel crowns and anterior crowns for both primary and permanent teeth. **Conclusions:** A substantial amount data is available on restorative materials used in pediatric dentistry; however, there exists substantial evidence from systematic reviews and randomized clinical trials and clinicians need to examine and understand the available literature evidence carefully to aid them in clinical decision making.

Key words: dental materials, evidence-based dentistry, pediatric dentistry, restorative dentistry, preventive dentistry

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INTRODUCTION

There is an array of dental materials available for restorative treatment in children and adolescents. Considering the ever-evolving nature of the science of dental materials, there is a constant need to reexamine the current literature, and determine the evidence for their use. Restorative care is a part of comprehensive oral health treatment plan that takes many factors into consideration including: caries-risk assessment, durability of dental materials, safety, developmental status of the dentition, anticipated compliance, and patient's ability to cooperate for treatment.¹

The intention of this article is to provide an evidence base to assist dental practitioners choose appropriate restorative care for children and adolescents.

MATERIALS AND METHOD

A thorough review of the scientific literature in the English language pertaining to restorative dentistry in primary and permanent teeth was completed. Electronic database and hand searches, for the most part between the years 1995-2013, were conducted using the terms: "Restorative treatment decisions, dental amalgam, glass ionomers, resin modified glass ionomers, conventional glass ionomers, atraumatic/alternative restorative technique (ART), interim therapeutic restoration (ITR), dental composites, resin based composite, compomers, stainless steel crowns, primary molar, preformed metal crown, strip crowns, pre-veneered crowns, esthetic restorations, clinical trials, and randomized controlled clinical trials".