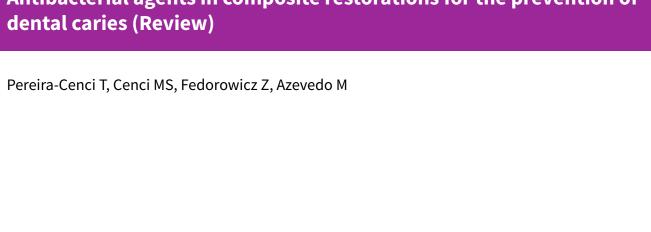


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[Intervention Review]

# Antibacterial agents in composite restorations for the prevention of dental caries

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#### **ABSTRACT**

# **Background**

Dental caries is a multifactorial disease in which the fermentation of food sugars by bacteria from the biofilm (dental plaque) leads to localised demineralisation of tooth surfaces, which may ultimately result in cavity formation. Resin composites are widely used in dentistry to restore teeth. These restorations can fail for a number of reasons, such as secondary caries, and restorative material fracture and other minor reasons. From these, secondary caries, which are caries lesions developed adjacent to restorations, is the main cause for restorations replacement. The presence of antibacterials in both the filling material and the bonding systems would theoretically be able to affect the initiation and progression of caries adjacent to restorations. This is an update of the Cochrane review published in 2009.

#### **Objectives**

To assess the effects of antibacterial agents incorporated into composite restorations for the prevention of dental caries.

# Search methods

We searched the following electronic databases: the Cochrane Oral Health Group's Trials Register (to 23 July 2013), the Cochrane Central Register of Controlled Trials (CENTRAL) (*The Cochrane Library* 2013, Issue 6), MEDLINE via OVID (1946 to 23 July 2013) and EMBASE via OVID (1980 to 23 July 2013). We searched the US National Institutes of Health Trials Register (http://clinicaltrials.gov), the *meta*Register of Controlled Trials (www.controlled-trials.com) and the World Health Organization International Clinical Trials Registry platform (www.who.int/trialsearch) for ongoing trials. No restrictions were placed on the language or date of publication when searching the electronic databases.

#### **Selection criteria**

Randomised controlled trials comparing resin composite restorations containing antibacterial agents with composite restorations not containing antibacterial agents.

# **Data collection and analysis**

Two review authors conducted screening of studies in duplicate and independently, and although no eligible trials were identified, the two authors had planned to extract data independently and assess trial quality using standard Cochrane Collaboration methodologies.

### **Main results**

We retrieved 308 references to studies, none of which matched the inclusion criteria for this review and all of which were excluded.



#### **Authors' conclusions**

We were unable to identify any randomised controlled trials on the effects of antibacterial agents incorporated into composite restorations for the prevention of dental caries. The absence of high level evidence for the effectiveness of this intervention emphasises the need for well designed, adequately powered, randomised controlled clinical trials. Thus, conclusions remain the same as the previously published review, with no included clinical trials.

# PLAIN LANGUAGE SUMMARY

# Use of antibacterial substances in resin-based fillings to prevent further tooth decay (next to the filling) developing after treatment

#### **Review question**

The main question addressed by this review is how effective the use of antibacterial agents in composite (resin-based, tooth-coloured) fillings might be in preventing the development of further decay either underneath or next to the filling (secondary caries).

#### **Background**

When tooth decay (caries) has caused a cavity in a tooth a range of materials can be used as fillings. These include resin composite, glass ionomer cement, amalgam and compomers. Tooth decay that may develop next to or underneath, a filling at a later stage is a common concern in dental practice and may reduce the life span of these fillings. It is thought that including a substance that kills and prevents the growth of bacterial (also known as an antibacterial agent) in some dental fillings, for example resin composites, could help prevent the development of this secondary caries.

#### **Study characteristics**

The Cochrane Oral Health Group carried out this review of existing studies and the evidence is current up to 23 July 2013.

The review authors have not found any trials to support or disprove the effectiveness of antibacterial agents incorporated into fillings to prevent further tooth decay.

#### **Key results**

No trials were found that were suitable for inclusion in this review.

# Quality of the evidence

Currently there is no evidence to support using antibacterial agents in fillings.