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[No evidence to support or refute the benefits of school dental screening.](#)

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Summary

(evidence level 2B) Review /

No evidence to support or refute the benefits of school dental screening

Abstracted from Joury E, Bernabe E, Sabbah W, Nakhleh K, Gurusamy K. Systematic review and meta-analysis of randomised controlled trials on the effectiveness of school-based dental screening versus no screening on improving oral health in children. J Dent. 2017 Mar;58:1-10.

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Question Does school dental screening improve oral health?

Data sources Medline, Embase, The Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials (CENTRAL), Cochrane Methodology Register, Web of Science ClinicalTrials.gov, and the WHO International Clinical Trials Registry Platform,

Study selection Randomised controlled trial (RCTs) of school-based dental screening versus no screening for oral health, conducted on children aged 3–18 years were considered

Data extraction and synthesis Two reviewers independently selected studies and abstracted data with study quality being assessed using the Cochrane risk of bias tool. narrative and quantitative syntheses of included studies' findings were performed. Risk ratios were calculated for binary outcomes, and standardised mean differences were planned for continuous outcomes.

Results Five cluster RCTs involving 28442 children were included with the type of screening intervention varying across the studies. Follow up periods varied from 2-4 months. Four studies measured dental attendance and one measured changes in prevalence and mean number of deciduous and permanent teeth with active caries as its primary outcomes. There was no statistically significant difference in dental attendance between children who received dental screening and those who did not. The studies were considered to be at high or unclear risk of bias.

Conclusions There is currently no evidence to support or refute the clinical benefits or harms of dental screening. Routine dental screening does not have an effect on dental attendance of school children, but there is a lot of uncertainty in this finding because of the quality of evidence. Given the potential benefits and costs of screening, there is a need to conduct an RCT with low risk of bias, adequate sample size, and follow-up to identify differences in clinical outcomes.

Commentary

Detecting dental disease at an early stage in life through school screening has been the subject of intense debate in recent decades, not least because of contradictory results from the research evidence [1-3]. In 2006, the UK National Screening Committee (UK NSC) concluded that screening for dental caries in 6 to 9-year-old children was not recommended, based upon a lack of evidence that school dental screening increased the level of children being seen by a dentist and did not reduce the level of active caries. This conclusion was further supported by the UK NSC in May 2014 as there was 'no new evidence to refute the earlier recommendation' [4].

The aim of this well-conducted study was to review randomised controlled trials (RCTs) that assessed the effectiveness of school-based dental screening versus no screening on improving oral health in children aged 3-18 years. Several aspects of this systematic review provide evidence of careful design. The authors registered their study at inception with the PROSPERO online database [5]. Registration with PROSPERO can help to reduce the potential for duplication and publication bias as it permits readers to compare the finished review against the original protocol. The study then followed the PRISMA guideline [6] which is used to help authors improve the reporting of systematic reviews and meta-analyses.

A wide range of electronic databases were searched and the grey literature was obtained through contact with experts. It is reassuring that the authors did not restrict their search of the literature to specific countries or year of publication and, although it was not ultimately required, publications were not restricted to the English language. A detailed search strategy was presented and screening of potential studies occurred independently by three pairs of authors. A helpful PRISMA flow diagram was provided for the selection of studies which ultimately led to just five RCT studies being included from 2,369 records initially identified. Three of the five studies were conducted in the United Kingdom, the other two were conducted in India. The Cochrane risk of bias assessment tool was applied [7] and charts to visually illustrate this aspect were presented for the five included studies.

In total, 28,442 children were included within the five studies. The ages of children included in these studies ranged from 5.5 years to 15 years, so the extremes of age proposed in the original protocol (3 years-18 years) could not be assessed. All the studies included were 'cluster' RCTs where participants are randomised in groups (e.g. at a school or classroom level) rather than being randomised as an individual.

Unfortunately, only 1 of the 5 RCTs included in this systematic review, measured changes in caries prevalence and the mean number of primary and permanent teeth with active caries as the primary outcome [3]. This large study found no significant differences between the screening and no screening groups [3]. The other 4 RCTs focused solely upon incidence of dental attendance and none of the included studies reported the harms or costs of screening.

The forest plot for the effect estimates of school-based screening on the incidence of dental attendance shows no evidence of overall clinical benefit from school screening. However, some of the studies produced wide confidence intervals and there was a high risk of performance bias with all the included RCTs as it was not possible to blind personnel and children to the interventions received. The authors were also unable to

assess for publication bias nor undertake subgroup or sensitivity analyses because of the small number of RCTs included. With regard to generalisability of the review's findings, the results may be most relevant to higher-income countries.

The authors rightly highlight that the majority of included studies used a surrogate outcome for oral health as they focused upon dental attendance rather than clinical outcomes. Furthermore, as research in this area has already highlighted, dental attendance following referral does not always ensure that children actually receive the dental treatment they require [8].

This systematic review and meta-analysis concludes there is currently no evidence to support or refute the clinical benefit or harms of school-based dental screening. However, there is considerable uncertainty in this finding as a consequence of the very low overall quality of the evidence available and substantial heterogeneity in the magnitude of effect. In future, primary studies need to focus upon measuring clinical outcomes and ensuring adequate follow-up. Whilst RCTs with more intensive follow-up approaches for those screened positive may well increase dental attendance, the costs of doing so always have to be considered against the benefits.

Readers may be interested to know that a protocol for a Cochrane Review entitled 'School dental screening programmes for oral health' was published earlier in 2017 [9]. The objective of the study is 'to assess the effectiveness of school dental screening programmes on overall oral health status and use of dental services' [9]. As with all systematic reviews, high quality primary research studies are necessary in order to provide a robust assessment of the research question. The systematic review and meta-analysis by Joury et al certainly highlights a need for more high quality research.

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