Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

CRD summary
This study assessed the cost-effectiveness of a publicly funded programme of pit and fissure sealant administration, in public or private dental practice, for eight-year-old school pupils. The authors concluded that the implementation of a universal school-based programme was as cost-effective as the usual programme at the time and it was more effective. The methods were valid and generally well described, but the results should not be considered to be conclusive. Further studies are needed to corroborate the authors’ conclusions.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study assessed the cost-effectiveness of a publicly funded programme of pit and fissure sealant application, in public or private practice, to the teeth of eight-year-old school pupils.

Interventions
The three interventions were a mixed programme, a private programme, and a public programme.

In the mixed programme, the application of sealants was offered by the public health care system in portable clinics in schools, to children identified as being at high risk of pit and fissure decay (the usual programme in Quebec). Children not at high risk could pay for their own treatment in private clinics. The risk factors included socio-economic status, dental condition, and the morphology of pit and fissure surfaces.

In the private programme, application of sealants was offered free of charge to all children under 10 years of age. It was performed in private clinics and paid for by public health insurance.

In the public programme, sealant application was offered free of charge to all children. It was performed in schools and funded by the public health payer.

Location/setting
Canada/community and private practices.

Methods
Analytical approach:
The analysis was based on a published Markov model and had a 10-year time horizon. The perspectives of the public health payer and the parents were adopted.

Effectiveness data:
The clinical data were from a selection of relevant sources. Most of the epidemiological inputs were from Quebec databases or surveys. Additional data were from published meta-analyses. Where required, two experts in dental public health from Quebec supplied estimates. Some assumptions and authors’ calculations were made. The incidence of decay was a key input for the model.

Monetary benefit and utility valuations:
Not included.
Measure of benefit:
The number of children without decay was the summary benefit measure.

Cost data:
The economic analysis included the costs of screening in schools, examination in private clinics, sealant application, and restoration in private clinics. Each of these costs included staff, materials, travel by patients and their parents, and productivity losses for parents. Fees were from the Fee Guide and Description of Dental Treatment Services. All costs were in Canadian dollars (CAD) and a 3% annual discount rate was applied.

Analysis of uncertainty:
Two-way sensitivity analyses were carried out considering extreme values for the model inputs. The discount rate was varied.

Results
The total 10-year costs per child were CAD 10,890,966 for the mixed programme, CAD 14,257,324 for the private programme, and CAD 11,723,584 for the school programme. The ratio of costs borne by the parents to those borne by the health care system was 70:30 for the mixed programme, 30:70 for the private programme, and 47:53 for the school programme.

The number of children without decay was 60,792 for the mixed programme, 64,672 for the private programme, and 65,626 for the school programme.

The average cost per child without decay was CAD 179 for the mixed and the school programme, and CAD 220 for the private programme. The incremental cost per additional child without decay was CAD 868 for the private compared with the mixed programme, and CAD 172 for the school compared with the mixed programme. The school programme was dominant over the private programme, as it was less costly and more effective.

The sensitivity analysis showed that the mixed programme was cost-effective when the retention of sealants was minimal, when the rate of resealing was maximum, when the rate of restoration was minimal, when the incidence of decay was minimal, or when the number of children at high risk was minimal. The school programme was cost-effective in the opposite scenarios, for example when the retention of sealants was high.

Authors’ conclusions
The authors concluded that the implementation of a universal school-based programme was as cost-effective as the programme in place at the time and improved preventive care.

CRD commentary
Interventions:
The rationale for the selection of the comparators was clear as the proposed school and private programmes were compared with the usual care in the authors’ setting (mixed programme). A clear description of the risk evaluation for the mixed situation was given.

Effectiveness/benefits:
No systematic review was reported to identify the relevant sources of data. The authors stated that Quebec data were preferred for epidemiology, as the prevalence of cavities and high risk varied among settings. No further information was given on the sources and their methodological validity, except for the use of a published meta-analysis, which should have been valid. Expert opinion was used where there were no published data and to validate the estimates found in the literature. The benefit measure was disease specific and might not be comparable with the benefits of other health care interventions.

Costs:
The cost categories appear to have been consistent with the perspective adopted. A list of cost items was provided, and the unit costs were presented separately from the resource quantities for all items, increasing the transparency and reproducibility of the analysis. The sources of data were reported and appear to have been appropriate for the
perspective. Reflation exercises might not be possible as the price year was not reported. The cost estimates were
treated deterministically and were generally not varied in the sensitivity analysis.

Analysis and results:
The results were clearly presented. Both average and incremental findings were reported, but it was unclear whether the
incremental cost-effectiveness ratio found for the school situation versus the mixed situation could be considered to be
good value for money. The analysis of uncertainty varied individual inputs, singly, and the results were sensitive to
some key clinical parameters, but the authors only reported the impact on the average cost-effectiveness ratios and not
on the incremental ratios, which was a limitation of the analysis. The findings should be considered to be specific to
Quebec, given the potential differences in epidemiology between settings, which had a big impact on the results.

Concluding remarks:
The methods were valid and generally well described, but the results should not be considered to be conclusive. Further
studies are needed to corroborate the authors’ conclusions.

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