

# Fluoride varnish programmes for adolescents at school – caries, conceptions and costs

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av

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- I. Bergström E-K, Birkhed D, Granlund C, Moberg Sköld U. Approximal caries increment in adolescents in a low caries prevalence area in Sweden after a 3.5-year school-based fluoride varnish programme with Bifluorid 12 and Duraphat. *Community Dent Oral Epidemiol* 2014;42:404-411.
- II. Bergström E-K, Moberg Sköld U, Birkhed D, Lepp M. Adolescents' experiences of participating in a school-based fluoride varnish programme in Sweden. *Swed Dent J* 2012;36:133-141.
- III. Bergström E-K, Moberg Sköld U, Birkhed D, Lepp M. Dental nurses' experiences of performing a school-based fluoride varnish programme for children and adolescents in Sweden. *Swed Dent J* 2016 (accepted).
- IV. Bergström E-K, Lingström P, Hakeberg M, Gahnberg L, Moberg Sköld U. Caries and costs: an evaluation of a school-based fluoride varnish programme for adolescents in a Swedish region. *Community Dental Health* 2016 (in press).

# Fluoride varnish programmes for adolescents at school – caries, conceptions and costs

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## ABSTRACT

The overall aim of this thesis was to study the effects on caries, conceptions and costs of school-based fluoride varnish programmes for adolescents in Sweden.

Paper I was a 3.5-year randomised controlled study of 1,143 adolescents, in a low caries prevalence area. Two fluoride varnishes, Bifluorid 12<sup>®</sup> and Duraphat<sup>®</sup>, were compared, with a variation in the frequency of application. In Papers II and III, 26 adolescents and 15 dental nurses were interviewed and asked to describe their experiences as participants or performers in a fluoride varnish programme at school. Paper IV was an evaluation of a school-based fluoride varnish programme, implemented on a broad scale for all 12- to 15-year-olds in a region in Sweden and caries data on 27,943 adolescents were analysed retrospectively.

The results revealed no statistically significant differences in caries increment between Bifluorid 12 and Duraphat, after fluoride varnish applications every six months. The adolescents experienced taking part as positive, but had feelings of exposure, peer pressure and a lack of information during the programme. The dental nurses had positive experiences of meeting adolescents in a context in which the adolescents were comfortable and relaxed with an opportunity to identify individuals with poor dental health. The caries increment was significantly lower, with a prevented fraction of 32%, after the implementation of a fluoride varnish programme in a large region. A break-even was shown between costs and gains due to prevented fillings at the age of 15.

The main conclusions were that a school-based fluoride varnish programme for all 12- to 15-year-olds, implemented on a broad scale in a large region, appeared to affect the approximal caries increment in a positive way. The cost of the programme was similar to the cost of the avoided fillings, during the four-year study period, which suggests good cost effectiveness in both the short and long perspective. The adolescents had mainly positive experiences of participating in a school-based fluoride varnish programme, although a desire for greater respect of their integrity was noted. Dental nurses described a feeling of professional development originating from the challenges associated with working in an arena outside the dental clinic.

**Keywords:** Adolescents, Approximal caries, Caries incidence, Caries increment, Caries prevalence, Cost-analysis, Dental nurse, Fluoride varnish, Oral health promotion, Phenomenography, Population-based, School programme

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