

Summary of: Recruitment and participation in pre-school and school-based fluoride varnish pilots – the South Central experience

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FULL PAPER DETAILS

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Refereed Paper

Accepted 28 March 2013

DOI: 10.1038/sj.bdj.2013.834

British Dental Journal 2013; 215: E8

Objective To assess recruitment and participation within seven school/pre-school-based programmes for fluoride varnish applications. **Method** Year-long pilots were undertaken in six primary schools (ages four to five years) and one pre-school (aged three years). Three applications of fluoride varnish were carried out coinciding with the three school terms. **Results** In spite of intensive recruitment efforts, only 78% of the total 589 children were enrolled in the pilot; 15% had to be excluded because no response could be obtained from their parents. At the end of 12 months, 79% of enrolled children (62% of total) had received all three applications. Children did not receive applications because they were absent on the days when the dental team were carrying out the screening or fluoride varnish applications, were ill, or because the child refused. The highest refusal rate was in the pre-school. **Conclusions** Younger children need to be targeted if improvement in the oral health of five-year-olds is to be achieved, the only dental measure in the Public Health Outcomes Framework, but they were less likely to cooperate. More research is needed on approaches to maximise participation in community programmes such as this, if they are to achieve significant population-level improvements in child dental health.

EDITOR'S SUMMARY

The 2003 Child Dental Health Survey showed that there has been a significant decline in the incidence of dental caries in UK children. However, it also indicated that the gap between children from deprived backgrounds and those from more privileged backgrounds is widening, particularly for younger children.

In an interview with the *BDJ* in 2012, Parliamentary Under-Secretary of State Earl Howe said that the biggest challenge facing the Department of Health (DH), in terms of dentistry, was 'the inequalities in oral health, particularly in children.'¹ He reported that pilots were underway to find new ways to support dentists to identify children who are at most risk of tooth decay.

This *BDJ* paper reports on one such pilot, assessing the impact of fluoride varnish application in a school setting in Southern England. It is aimed at those very children at most risk: four- to five-year-olds from a deprived area. As we know evidence shows that fluoride varnish is associated with a reduction

in caries and the DH's own document *Delivering better oral health - an evidence based toolkit* recommends two to four applications a year from the age of 3 to 16 (depending on the caries risk). But could this be an answer to the inequality problem? Does it really work in a real-life environment where engaging with young children and their parents is hard work? Will we be able to encourage parents and children to comply with preventive treatment? Is it cost-effective?

Following their significant attempts to recruit children with parents' permission to this fluoride varnish pilot, the authors of this study note that 'targeted programmes are resource intensive and need to reach *all* children [...] to justify the high level of investment.' They warn that population-wide improvements will not be achieved if children with the highest needs do not participate and that the result could even be further widening of the current dental health inequalities. The stumbling block appears to be finding a way in which all children participate, once this happens the results

indicated by the evidence kick in and caries levels are reduced.

As Dr Drugan raises in her commentary, water fluoridation would certainly seem to be a cost-effective alternative to achieve equality. Maybe it needs to be revisited with a resurgence of support from the dentistry community? It will also be interesting to see the effect of other attempts to close the gap, in programmes such as Childsmile in Scotland and Designed to Smile in Wales. It is clear from this research study that significant headway is still required to 'fix' the inequalities problem. Hopefully, this will be made sooner rather than later to halt the increase in inequality.

The full paper can be accessed from the *BDJ* website (www.bdj.co.uk), under 'Research' in the table of contents for Volume 215 issue 5.

Ruth Doherty
Managing Editor

1. Doherty R. Earl Howe: 'We've got to have a system in which everyone has confidence.' *Br Dent J* 2012; 212: 563–564.

DOI: 10.1038/sj.bdj.2013.857

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IN BRIEF

- Describes the multi-faceted approach used to achieve the best possible outcome for an oral health improvement programme with topical fluoride applications targeted at young children.
- Highlights the issues around establishing and maintaining such a programme, in particular regarding parent engagement.
- Outlines the limitations of targeted health improvement interventions that are resource intensive.

COMMENTARY

This study investigated recruitment and participation in a pilot fluoride varnish programme in both school and pre-school settings in areas of deprivation. The paper highlights an important problem encountered when translating an intervention that has been shown to be effective under the controlled conditions of a trial into the community. The authors used a variety of methods to maximise participation and the pilot was described by the authors as being resource intensive. Using consent letters to parents via children's book bags had a very poor response of only 20-30%. The authors tried to improve consent rates by use of posters, texting and intercepting parents at the school gate. Despite this, positive consent was obtained for only 78% and the full intervention was received by 62% of the children in the study.

Interventions known to be effective in research trials often fail to show the same effectiveness when rolled out to the wider population in community settings. Reasons for this include poor response rates and poor adherence to the intervention prescribed. It is often those who would most benefit from an intervention that are least likely to participate. For a school-based fluoride varnish scheme to be clinically effective high uptake is a prerequisite, particularly of those people who are considered to be at a high risk of decay. Whilst fluoride varnish has been shown to be effective at reducing caries rates in randomised controlled trials with high response rates, two recent studies

of community-based fluoride varnish application failed to show the caries reduction, in each of these trials the response rates were about 50%.

Before programmes such as this are rolled out the cost-effectiveness as well as the clinical effectiveness needs to be established. In an environment of limited resources the opportunity costs need to be considered and all methods of caries reduction need to be evaluated and compared. One of the most cost-effective methods of caries reduction is water fluoridation that has not only been demonstrated to be clinically effective but confers universal coverage for all age groups, all other caries prevention programmes should be compared to this.

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AUTHOR QUESTIONS AND ANSWERS**1. Why did you undertake this research?**

Provision of topical fluoride varnish (FV) applications has been touted as the means of achieving positive outcomes for children. The potential has been highlighted in research studies, however, positive research outcomes are often difficult to realise in non-research settings, primarily due to the difficulties in securing and maintaining participation from targeted individuals. This project was undertaken to assess the feasibility of establishing and maintaining an oral health improvement programme with FV applications in schools identified as 'high-needs' with regard to oral health. To maximise the impact of the intervention every possible means was used to maximise participation. We were keen for the learning from this pilot to inform the development of oral health improvement strategies and programmes in the area.

2. What would you like to do next in this area to follow on from this work?

Targeted oral health improvement programmes have repeatedly been found to be resource-intensive and often failed to reach those most in need. This project faced the same issues, in spite of all the efforts involved. We await the outcome of the evaluation of Scotland's Childsmile and the Welsh 'Designed to Smile' programmes that will assess the effectiveness and cost-effectiveness of programmes involving FV applications. In the interim, we would like to work with local general dental teams, local councils and other partners to investigate further options for improving the oral health of local children.