

Proven Public Health Measures – spotlight on Childsmile in Scotland

Prof Gail Douglas, University of Leeds

For decades the oral health of children in Scotland was among the worst in Europe and given the strong link between caries and deprivation it had an unenviable task on its hands to improve things for future generations. It is a relatively small nation, with a population of around 5.5 million with over 80% being in urban locations. While water fluoridation is a proven route to improve oral health and address inequalities; and had been utilised to good effect in some parts of Scotland, all water fluoridation schemes ceased in 1983 after a legal review. Legislative changes have permitted consideration of water fluoridation since then, but it remains an approach opposed by a vocal minority and with some technical challenges.

So, what do you do when there are stark inequalities in oral health in a small country?

Introduction of Childsmile

Well in Scotland financial support was put in place to attempt to address oral health levels and inequalities through national initiatives. Following a review of the evidence and publication of a national action plan, one of the approaches adopted nationally was daily supervised toothbrushing for children aged 3 and 4 years within the pre-school setting. This expanded to include toothbrushing schemes for 5–7-year-old school children in areas of deprivation. Another important element was the engagement in oral health improvement with non-dental health professionals. As part of every Scottish infant's 8-month health check packs of toothbrush/paste and feeding cups were given out along with signposting to local NHS dental services to encourage early dental registration. These elements became part of the national demonstration project known as Childsmile after piloting in 2006/7. Since 2011 Childsmile has included nationally:

- Provision of toothbrush and toothpaste to children on at least 6 occasions by the age of 5
- Targeted fluoride varnish application within pre-school and primary school settings
- Universally accessible child-centred NHS dental services through independent and public dental service providers.

What impact has CHILDSMILE had on oral health in Scotland?

Prior to the start of the suite of improvements now known as Childsmile, in 2000 the prevalence of obvious dentine caries experience was 54%, but as high as 79% in the most deprived areas. The latest survey of 5-year-olds in 2018 has seen this reduce to 29% and 44% respectively. The count of teeth with decay experience has also reduced by more than half to 1.14 and the total number of fillings and extractions in 5-year-olds have reduced by 62% and 35% respectively.

You can view the trends in oral health and read the 2018 National Dental Inspection Programme report here <https://www.scottishdental.org/wp-content/uploads/2018/10/2018-10-23-ND...>

Is CHILDSMILE cost-effective?

Anopa and co-workers (Anopa et al, 2015) reported that the estimated costs of dental treatment before Childsmile were around £8.8 million and 10 years later were less than half of that amount. With an annual cost for the nursery toothbrushing programme being around £1.8 million annually, they estimated that annual savings ranged from £1.2 million (2003/04) to £4.7 million (2009/10).

Summary

In summary, the Childsmile programme is an evidence-based suite of interventions which is based upon the premise that everyone gets some help, but most help is given to those who need it most (proportionate universalism) to address inequalities. Its introduction in Scotland has seen the national oral health of children improve as well as a demonstration of cost-effectiveness. Though it is difficult to unpick the effectiveness of individual components of the programme the success of Childsmile is undeniable and it is a tremendous example of proven public health measures in action.

Further reading

Macpherson LM, Ball GE, Brewster L, Duane B, Hodges CL, Wright W, Gnich W, Rodgers J, McCall DR, Turner S, Conway DI (2010). Childsmile: the national child oral health improvement programme in Scotland. Part 1: Establishment and development. *Br Dent J* 209(2):73-8

Anopa Y, McMahon AD, Conway DI, Ball GE, McIntosh E, Macpherson LM (2015). Improving child oral health: cost analysis of a national nursery toothbrushing programme. *PloS one*, 10(8), p.e0136211.

Childsmile webpage <http://www.child-smile.org.uk>