

# Evaluation of a pilot oral health promotion programme 'Keep Smiling': perspectives from GDPs, health champions and school staff

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## IN BRIEF

- Describes a pilot programme involving the education, health and voluntary sectors to deliver a supervised toothbrushing and fluoride varnish programme in primary schools in a deprived area of London.
- Explores the barriers and facilitating factors in implementing oral health promotion programmes in community settings.

**Objective** To evaluate a pilot oral health promotion programme (fluoride varnish and tooth brushing), targeting 3–7-year-olds in primary schools in a deprived area of London. **Method** A pilot programme was conducted among five primary schools targeting 3–7-year-old children in a deprived area of London. The programme consisted of a fluoride varnish application and tooth brushing sessions. Outcome (participation rates) and process evaluations were carried out using semi-structured interviews with school staff, health champions and dentists. **Results** Overall, 79.2% of the targeted children participated in tooth brushing and 68.6% of children received fluoride varnish. The programme received positive feedback from school staff, dental teams and health champions. It raised awareness of dental health among all stakeholders and provided children with a unique experience, creating a positive image of dental teams. **Conclusions** Community engagement and collaboration between health, education and the voluntary sector is feasible and integral in developing oral health promotion programmes aimed at children attending primary schools in a deprived area of London.

## INTRODUCTION

Oral health being part of general health is influenced by the wider socio-economic determinants of health, as well as by proximal determinants such as availability of health services and individual health risk behaviours.<sup>1</sup> Inequalities in children's oral health has been consistently demonstrated from national and local oral health surveys.<sup>2,3</sup> Although tackling the wider determinants may be effective, it is also important to develop downstream actions targeting local communities. This entails multi-sectorial engagement and integration of health, education and voluntary sectors to reduce the burden of oral conditions.

In Hammersmith and Fulham, 50% of 5-year-olds have experienced dental caries.<sup>3</sup> Locally, it is the main cause of hospital

admissions for children, accounting for 22% overall admissions within the 5–9 age group.<sup>4</sup> The deprived wards of Wormholt and White City consist of families living in public housing and a large proportion of ethnic minorities. Younger children (under-fives) in the ward have poorer dental health than other areas in the borough.

The NICE review on oral health improvement strategy for local authorities established that there is some evidence of effectiveness of fluoride varnish (FV) and tooth brushing programmes implemented in primary schools.<sup>5</sup> The recent report *Commissioning better oral health for children and young people* recommends community-based preventive programmes to support improvements in oral health.<sup>6</sup> Added to this, peer-led programmes, which include training of local community support workers, may facilitate community engagement and tackle cultural and language barriers.<sup>6</sup> However, there have been few studies which have evaluated preventive programmes that adopted a multi-sectorial approach integrating education (school staff), the voluntary sector (health champions) and health (dental teams). Furthermore, there has been limited evaluation by using quantitative and qualitative data to understand the barriers and facilitators in implementing such programmes in community settings.

Addressing this gap, our aim was to evaluate a pilot prevention programme (FV and tooth brushing), targeting 3–7-year-olds in primary schools in a deprived area of London. The pilot was evaluated in order to determine the feasibility of implementing such health improvement programmes.

## METHODS

### Development of the Keep Smiling programme

The pilot was developed as a combined FV and tooth brushing programme, delivered by local GDPs and oral health promoters within five primary schools targeting 3–7-year-olds. The programme was innovative in its collaboration with a wide variety of health professionals, school staff, as well as health champions (Fig. 1).

The schools selected were based on the integration of the Keep Smiling programme with that of the Health Champions Project, which targeted key public health issues in the area.<sup>7</sup> Participating schools were in the most deprived area of the local authority and were within the most deprived 10% nationally. The population is ethnically diverse, with 69% classified as non-white (22% Black African and 14% Black Caribbean).<sup>8</sup> There is a large community of Somali- and Arabic-speaking families.

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The Consultant in Dental Public Health (DPH) attended a head teacher's forum to introduce the programme and followed it up by meeting with nominated tooth champions (TC) in each of the designated schools. A TC was identified in each school allowing liaison with a single contact person to ensure the smooth running of the programme. In addition, regular contact was maintained with the schools, and the programme was promoted via school newsletters and the schools' websites.

The consent and information sheets were sent out (in the child's school bag) two to three weeks before the delivery of the programme and teachers encouraged parents to return the forms. The information sheet and consent forms included information on the aim of the programme, the benefits of FV, side effects, instances where the FV cannot be applied in a community setting (such as severe asthma or allergy) and advice on post application, confidentiality and data protection.

### Training of health champions

The HCs were part of a wider project, and consisted of 18 local volunteers trained to promote general health. They received two training sessions: an overview of the key oral health messages and implementation of the Keep Smiling programme. Oral health resources were developed to support their work, including an information pack and patient literature.

### Recruitment of local dental teams

The two local GDPs with their dental nurses delivered the FV (Fig. 2). The GDPs were selected based on their dental practices being closely located to the five schools, and previous history of engagement in prevention. One of the dental teams was co-located within one of the selected primary school premises.

The local outreach FV protocol met the standards set by GDC *Scope of practice guidance*, *Delivering better oral health* and *Contamination guidance for dental practices HTM 01-05*.<sup>9-11</sup> The protocol was reviewed by the PCT and the DH. The protocol included aims of the programme, a screening protocol, consent, confidentiality, protocol for FV application including contra-indications, indemnity, post-application advice and procedures for data collection and storage.

### Funding

The GDPs were paid fee per item of fluoride varnish application. The cost of the programme was equivalent to £12 per child totalling to approximately £8,300 (698 children), including workforce, resources and administration.

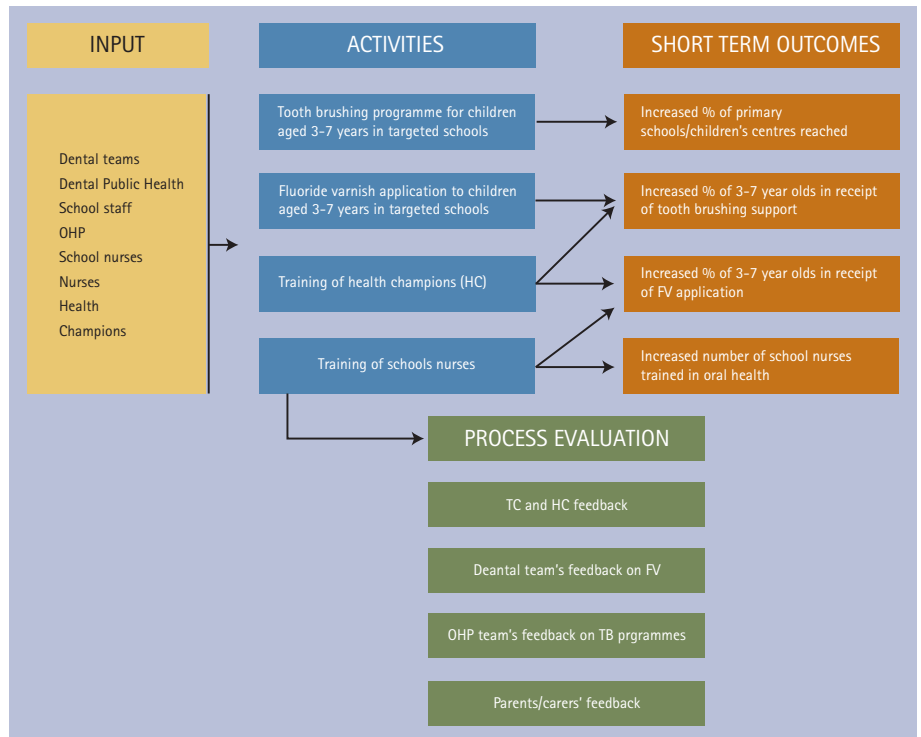


Fig. 1 Logic model for the Keep Smiling programme



Fig. 2 A GDP and his dental team applying fluoride varnish in one of the pilot schools

As this was a pilot programme, outcome and process evaluations were carried out. Although measuring the impact of a programme is beneficial, process evaluation is valuable in determining the extent to which the programme is being implemented according to plan, as well as identifying barriers and facilitators to programme implementation. A logic model was developed including input, activities, and process and outcome evaluations (Fig. 1).

### Process evaluation

Qualitative methods for the process evaluation involved semi-structured interviews with five TCs, two GDPs, and two HCs.

The objectives of the interviews were to:

- Explore the views and experiences of stakeholders in their involvement in the programme

- Examine any barriers and facilitators in operation of the programme.

Although parental and OHP teams' feedback were sought with focus groups, this will not be reported.

### Data analysis

#### Quantitative data:

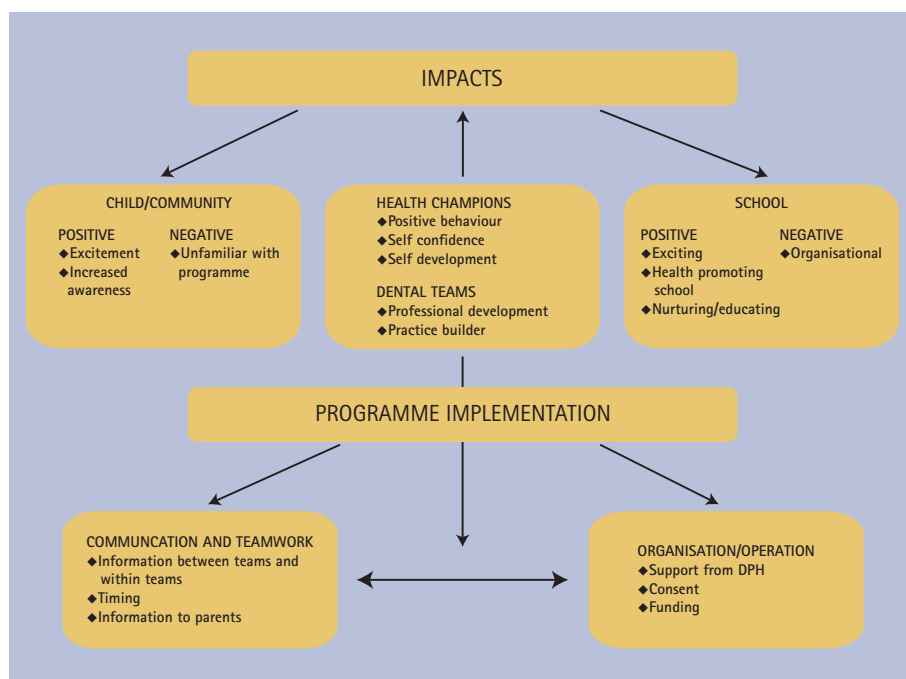
The target number of children, the number and proportion of children consenting and receiving FV and tooth brushing sessions were collected and analysed by school.

#### Qualitative data

All interviews were recorded and transcribed. Thematic analysis was adopted. The first step was familiarisation with the data followed

**Table 1 Summary table showing the consent rate and reach of the fluoride varnish and tooth brushing programmes by school, compared to the total across all five pilot schools (March 2012)**

	School A N (%)	School B N (%)	School C N (%)	School D N (%)	School E N (%)	Total N (%)
Eligible children aged 3–7-years	216	146	199	217	103	881
Number and proportion of children with consent for FV	194 (89.8%)	119 (81.5%)	153 (76.9%)	131 (60.4%)	55 (53.4%)	652 (74.0%)
Number of consenting children who did not receive FV on the day (absent/refused/medical history)	16	4	19	4	5	48
Number and proportion of children with consent and who participated in toothbrushing	211 (97.7%)	129 (88.4%)	155 (77.9%)	139 (64.1%)	64 (62.1%)	698 (79.2%)



**Fig. 3 Themes which emerged from interviews with TCs, HCs and GDPs in relation to the implementation of the programme**

by thematic analysis to develop a coding system. This was followed by summarising the data under the different themes in a framework chart. A classification emerged from the charts, which supported the analysis of the emerging data.

## RESULTS

### Consent and participation rates

The mean response rate for both the tooth brushing and FV programmes was 76.5% among the five schools. Overall, 79.2% (range 62.1–97.7%) of the targeted children participated in tooth brushing and 68.6% (range 48.5–82.4%) of children participated in the FV (Table 1).

### Feedback from TCs, GDPs and HCs

Two GDPs, two HCs, and four out of the five TCs participated in the evaluation. The themes that emerged were classified into:

organisation, communication, impacts on children, the school and the HCs (Fig. 3).

### Organisation of the programme

There was a general consensus among TCs, GDPs and HCs that the programme was well organised. The schools adopted varying approaches in gaining consent from parents. Some of the schools conducted oral health promotion sessions within classrooms before the programme, whereas others approached parents in the playground.

*‘...they kept handing out, badgering parents, encouraging parents, so we had a pretty good return on it. I think normally engaging parents is an issue in lots of schools. But I think they worked their socks off to get that x%. They did incredibly well.’* (TC2)

In some of the schools, consent for participation was facilitated by engagement of dedicated HCs who incidentally had children in the school and were part of the

Somali community. The TCs also cited that children influenced their parents in gaining consent as they saw their peers participating in the programme.

There was an emphasis that schools work differently and that these variations will impact on the delivery of future programmes. Despite the DPH team chasing up schools about consent forms in advance of the programme, some schools struggled with the return of the forms.

Some of the TCs also recommended the development of a protocol aimed at schools to ensure smooth implementation of future programmes.

*‘I think the school wasn’t very organised in seeing what forms we had got back because all the forms were coming back to the office so it wasn’t until, I think, the day that we knew which children had brought back their forms, so I think that’s probably the school’s fault so, if the school had been a bit more organised, we would have been able to get on to that quicker, I think.’* (TC3)

There was recognition that the DPH team supported dental teams in the implementation of the programme and the FV protocol was helpful in the implementation stage.

In relation to financial reimbursement, although this was perceived to be adequate one of the GDPs preferred payment on a sessional basis rather than per FV application. The reason was to compensate for the unpredictable consent rates among schools. Although it was envisaged that dental nurses would carry out the administrative tasks, GDPs felt that they needed to manage this process themselves to ensure the payments were processed correctly.

*‘...paperwork - to be honest, I did it myself. Only because I wanted to make sure it was all right, you know there’s always a chance of admin error.’* (GDP 2)

### Communication

Overall, the TCs thought the communication between DPH team and the schools was good. There were some concerns expressed around the timings of the communication; schools being busy settings required more flexible timelines. Some of the TCs suggested that communication should be directed to more than one person to ensure that the workload is shared among several staff.

A number of TCs expressed their concerns about the lack of/limited communication within their respective schools, highlighting that schools varied in their process for internal communication. This was due to the head teachers not passing on information to their staff about the programme.

*‘I didn’t feel I had a lot of information at the beginning but it might be that it wasn’t*



passed on, so, in which case the fault is ours.' (TC3)

Although the TCs felt there was adequate information for parents, they suggested that the information may need to be translated to Somali and Arabic.

## Impacts of the programme

### *Impacts on children and dental teams*

There was overall agreement among GDPs, TCs and HCs that the programme was beneficial for the children and educating the local community. It facilitated reaching children who had not visited a dentist routinely and presented dentists in a positive light to children. Dental teams enjoyed working in an outreach setting, and it was reported that there was a perceived increase (although this could not be quantified) in the number of families contacting to register with the dentist. In addition, it was generally cited that the children were excited to be involved.

*'The children were buzzed, weren't they? Kids that age, they like practical things and they like to be chosen. And it's lovely that they get a new toothbrush all given to them – gifts, freebies.'* (TC4)

*'...they are not these horrible men (dentists) in these offices that smell of disinfectant. They are human beings and they smile and talk to you. Because a lot of our children haven't been to the dentist and it's a good way of children educating the parents as well.'* (TC3)

There were few issues cited in relation to negative impacts of the programme. These included children being unfamiliar with the healthcare teams and the programme. The TCs perceived the tooth brushing as more popular, being less invasive than the application of FV.

### *Impacts on schools*

Fundamentally, the TCs agreed with the concept of a health promoting school in which it provides a healthy environment for improvements in health and well-being, as well as educational attainment.

*'...we both like educating ourselves and I think parents can be educated. In this case it was very helpful. And we want our children to be healthy and not in pain, not in fear and working together and like ....was saying, getting the dentists in school.'* (TC3)

Although a number of positive impacts were cited, it was recognised that there were also some significant impacts on school staff in terms of their time, space and organisation.

There was frustration expressed by some of the TCs, which were attributed mainly to internal factors within the schools.

### *Impacts on HCs*

The programme also had positive impacts on the HCs themselves. The training provided them with knowledge and confidence to engage with the local community and the possibility of undertaking formal qualifications in the future. The HCs cited that they were able to form partnerships with the DPH team, dental teams, schools and the community effectively.

*'Yeah, I worked as a child community help supporter. I was a medium between some volunteers that I worked with and some community champions so we were engaging during the programme.'* (HC 2)

### *Triangulation of data on consent rates*

The schools achieved varying consent rates, which was dependent on a number of factors such as engagement with the local community and the school, parental knowledge and support. Triangulating the information on consent rates by school with the qualitative data from TCs revealed that those schools who had clear communication lines and were actively involved (health promotion sessions and direct involvement of teachers) achieved better consent rate (schools A,B and C). In addition, the involvement of HC who spoke Arabic with parents, at school pick up and drop off also supported raising the consent rates. Two of the schools which had achieved lower consent rates were not perceived to be as organised and this was reflected in one of the school's inspection report.

## DISCUSSION

This pilot addressed some of the gaps in assessing the feasibility of implementing a prevention programme in a deprived area and included outcome and process evaluations. Interviews with dentists revealed that they were professionally satisfied with being involved in an outreach programme and collaborating with schools. The programme was acceptable to all stakeholders (GDPs, TCs and HCs), and was feasible to conduct in local primary schools.

The main outcome was the participation rates and consent rates among children, which was considered to be good. The consent rate was 74.0% (range 53.4–89.9%) for FV and 79.2% (range 62.1–97.7%) for the tooth brushing programme. A pilot study in the Southeast region achieved similar consent rates of 82.7% among 3–7-year-olds attending schools in deprived areas.<sup>12</sup> A FV programme targeting 3–6-year-old children in a deprived area of London achieved lower participation rates than the current pilot. In the first year, only 42% of children had one FV applications.<sup>13</sup>

The success in achieving an adequate consent rate is attributable to the efforts

made by the DPH team to engage with a variety of stakeholders including the local council, the voluntary, health and education sectors who supported the delivery of the programme. Although efforts made by the DPH were resource intensive, it allowed the identification of facilitators and barriers to programme implementation in outreach settings.

The process evaluation revealed there was variation in programme implementation between schools. Identification of school staff as TCs who led on the delivery of the programme was essential. It was evident that schools which were considered to be more engaged were more successful in achieving higher consent rates. Although the DPH team had little influence on the internal communication within schools, awareness of this issue is important in delivering future initiatives.

Conducting a pilot programme in a deprived area had positive impacts on children and their communities. Children were keen to be involved and awareness on oral health may have been raised in the short term. It also portrayed dentists in a positive light, especially for those children who do not visit the dentist normally. Children readily accepted both the FV applications and the tooth brushing sessions.

The recruitment of community champions to provide health promoting activities, by motivating communities and empowering them to influence local organisations and health services has been recommended.<sup>14</sup> The reasons are multi-faceted including having a comprehensive knowledge of the community and its needs supporting the development of healthy promoting environments and enabling sustainability.<sup>15</sup> Apart from the added benefits to their local communities, there were also perceived individual impacts on the HCs and their families, some of whom had children and were empowered to offer health promoting advice and follow advice on reducing sugars consumption and the use of fluorides at home. The HCs also reported increased knowledge and confidence, which is in line with other studies.<sup>16</sup>

Despite meeting with TCs to explain the remit of the programme, some were unfamiliar with delivery of such programmes and in hindsight they would have benefited from a programme protocol. One of the weaknesses of this study is that it was a pilot not a RCT and this may affect the generalisation of the results. However, the study provides an insight into the facilitators and challenges in delivering health promotion programmes in the community. Although one of the nurses was trained in the application of FV, the dentists preferred to take responsibility for FV application as it was their first time in

delivering an outreach programme. It is recommended that extended dental duty nurses deliver FV with the advantage of reducing costs and encouraging skill mix in the future.

Evaluation needs to be embedded in planning of health promotion programmes with consideration of economic evaluation as well as health benefits in the long term.

Recommendations for future programmes:

- Availability of protocols for different stakeholders
- Integration of oral health into wider community development programmes and using existing resources
- Opportunities for engagement with parents at schools, coffee mornings, parent/teacher meetings, adult literacy programmes
- To ensure that the organisation of future programmes takes into account time, space, manpower and communication
- Use of skill mix to deliver similar programmes
- Evaluation using qualitative and quantitative methods.

## CONCLUSIONS

Engaging schools, community workers and dental teams had the added benefit of ensuring that the programme was sensitive to local needs. An in-depth process evaluation revealed the facilitators and barriers in implementing outreach programmes for improvements in oral health.

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