

Evaluation of Evidence Based Caries Reduction Programmes (EBCRP) – Use of Fluoride toothpaste Schemes in Northern Ireland, 2004 -2008

Background

CDS staff have for years undertaken a wide variety of programmes aimed at improving the oral health of their local population, especially children. Up until 2004, there was no specific stipulation as to what type of oral health improvement programme Trusts were to run and it was left to each individual Trust to undertake such programmes, as they felt appropriate for their area.

In 2003, an analysis of the various programmes run at Trust level revealed that no fewer than 39 schemes operating under 17 different programme types were ongoing across the province aimed at everything from caries reduction to smoking cessation.

The major oral health problem facing children in Northern Ireland is dental caries. Despite these myriad schemes aimed at reducing the caries rates in children, there had been little improvement in disease levels over the past 10 years, and this is particularly so in the under 5 year olds.

It was therefore decided to target a caries reduction programme at pre-school children, and importantly, this programme was to be evidence based.

In the absence of water fluoridation, the majority of other evidence-based schemes involve the use of fluoride toothpaste.

A workshop to discuss evidence based caries reduction programmes was organised by the DHSSPS in August 2004 for Community Dental Service staff who were involved in operating these schemes. All Trusts confirmed in writing to the DHSSPS by the end of September 2005 that they had an evidence-based programme in place and detailed the nature of that programme.

Fluoride toothpaste schemes aimed at preschool children were introduced into all Trusts by 2005 in order to meet the priority for action (PfA) for 2004/05 'Working together, Boards and Trusts should have implemented an evidence-based caries reduction programme amongst pre-school children by 31 March 2005'.

The important policy change was to focus health improvement initiatives in an evidence based direction.

The trend in dental caries rates was measured over the next 3 years using data from the school dental screening programme to monitor the effect of these fluoride toothpaste schemes.

Investing for Health Funding

In April 2005, Dental Branch secured additional funding, from the Investing for Health budget, of £100k annually for a 3 year period to help support caries prevention. In May 2005 the Community Dental Service (CDS) were invited to submit bids to support a fluoride toothpaste programme to address dental caries in deprived areas. These new programmes were to complement, rather than replace, existing evidence-based caries reduction programmes.

The template below was issued to invite bids

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| <ul style="list-style-type: none"> • Age • SES (and how measured) • Where located (urban/rural) • Ethnicity • Describe the setting(s): <ul style="list-style-type: none"> ▪ Play/education ▪ State/private/voluntary ▪ Community group/family ▪ Primary care | <ul style="list-style-type: none"> • Describe the nature of the intervention(s): <ul style="list-style-type: none"> ▪ DHE ▪ Fluoride ▪ Regulation ▪ Community development • What other personnel, apart from CDS staff, are involved in delivering the programme ? | <ul style="list-style-type: none"> • Approximately how many hours of CDS time does the project take to run per week • Please describe briefly the nature of the planned evaluation: <ul style="list-style-type: none"> ▪ Structural ▪ Impact (i.e. immediate outcome) ▪ Process ▪ Outcome ▪ Economic appraisal | <ul style="list-style-type: none"> • Any baseline measurements • Number of children involved in the project • Start date of project • Date of any interim evaluation planned • Source of funding for project • Any identified barriers to success and how these can be overcome |
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Essentially three types of scheme were funded:

1. **Postal Schemes:** Fluoride toothpaste was posted out in a pack, along with a toothbrush and instructions on use, to children from deprived families.
2. **Supervised tooth brushing schemes:** Children in pre-school settings were overseen by staff in a daily brushing routine with fluoride toothpaste.
3. **Pre-school distribution schemes:** Children attending pre-schools in selected areas receive toothbrushes, toothpaste and instructions at school for home use.

Summary of Toothpaste Schemes funded through Investing for Health

Trust	age range	number of children	type of scheme	setting
Armagh & Dungannon	½-5 years	2337 ¹	toothbrush & toothpaste delivered on-site	day nursery playgroup nursery school
Causeway	2-4 years	1300	1. toothbrush & toothpaste posted to children 2. supervised brushing on-site	1. at home 2. nursery & playgroup
Craigavon & Banbridge	½-5 years	2337 ²	on-site toothbrush & toothpaste	day nursery playgroup nursery school
Down Lisburn	3-4 years	1400	1450ppm fluoride toothpaste and toothbrushes delivered by CDS staff	delivered to pre-school sites for use at home
Foyle Community	birth-4 years	9309	dental & nutritional advice to parents toothpaste & toothbrush for children staffed by health visitor	local health centres
Homefirst	2-5 years	750	toothbrush & toothpaste posted to children	at home
Newry & Mourne	½-5 years	2337 ³	on-site toothbrush & toothpaste	day nursery playgroup nursery school
North & West Belfast	3-5	2042	1450ppm fluoride toothpaste and toothbrushes delivered by CDS staff	delivered to pre-school sites for use at home
South & East Belfast	3-5	1448	toothbrush & toothpaste delivered on-site	delivered to pre-school sites for use at home
Sperrin Lakeland	birth-4 years	3373	school staff relating oral health message learned from CDS with 1450ppm fluoride toothbrushing on site each day	pre-school
Ulster & Community Hospital	3-5	700	1450ppm fluoride toothpaste and toothbrushes delivered by CDS staff	delivered to pre-school sites for on-site toothbrushing scheme

Outcomes

A full evaluation of the Investing for Health funded schemes has been produced by Michael Donaldson, Consultant in Dental Public Health (HSCB). As these fluoride toothpaste programmes were set up as a community intervention rather than as a research project, it is difficult to prove cause and effect. However several indicators suggest that that decay levels in young children in Northern Ireland are dropping significantly:

General Anaesthetic (GA) Extraction data: The large number of extractions under GA reflects the poor oral health of our children. It is one of the reasons why initiatives with a preventive focus such as the EBCRP and the General Dental Services (GDS) fissure

¹ This figure is the total for the Board

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sealant scheme were introduced. We are glad to demonstrate a significant downward trend for GA extractions; In 2004 there were 8631 GA cases undertaken and almost 40,000 teeth extracted compared to 2007 where just under 6000 GA cases were undertaken and approximately 29,000 teeth were extracted. This continuing drop in dental extractions under GA is very encouraging and even more so given that there has also been a noticeable drop in the number of dental extractions undertaken in the GDS; for example, at the Northern Ireland level approximately 30% fewer deciduous teeth were extracted in the first quarter of 2008 compared to the same period in 2005.

PfA Target: The 2005 -2008 PfA target 'by March 2008, Boards and Trusts should reduce the difference in decay levels in 5 year old children in the fifth most deprived wards in each community Trust area and the Northern Ireland average by 20%' was achieved in all but one of the legacy Trusts with the baseline caries rate reducing from 2.09 in 2003/04 to 1.68 in 2007/08.

Future of Toothpaste Schemes

Given the strong evidence based nature of these schemes, the DHSSPS has now made the funding for the fluoride toothpaste schemes recurrent. Dental staff from the RHSCB will work with Community Dental staff in the HSC Trusts to further refine the three types of schemes with a view to collecting good quality oral health measures so that overtime an accurate assessment of scheme effectiveness can be made.

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