

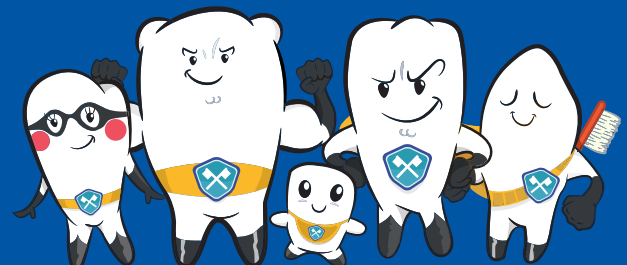


THE TEETH TEAM PROGRAMME

An update of a collaborative working partnership on a school based supervised tooth brushing programme, incorporating clinical dental assessments, applications of fluoride varnish and the subsequent signposting for accessing primary and secondary dental care.

*Produced by Teeth Team Limited
543 Anlaby Road, Hull*

TEETH TEAM LIMITED
Progress Update February 2014



EXECUTIVE SUMMARY

The Teeth Team (formerly known as Brush Bus) is a local child dental health improvement programme.

In 2010, three local dental practices, the salaried dental service and a dental supplies company, were concerned about the high incidence of dental decay (caries) in local children and decided to join forces to create a partnership.

The partnership continued until the autumn of 2013 when the salaried dental services felt they could no longer continue to support the programme at its current level of commitment and therefore, the partnership continued without them.

Initially, the initiative was known as the Brush Bus Partnership, but recently, the children involved were asked to rename the programme, hence our new name, Teeth Team!

Since the conception of the partnership, additional partners have come on board and now consist of:

- 543 Dental Centre Ltd
- East Hull Dental Centre
- Chris Ayer Dental Surgery
- Carestream Dental
- Henry Schein Dental
- BP

Together, the partners support over 11,000 local children at primary and nursery schools in the Hull and East Riding locality.

The aim of the Teeth Team programme is to reduce the inequalities in oral health among children. When you look at the determinants of oral health inequalities, the Teeth Team

addresses many of the issues and targets those in greatest need, i.e. the most deprived wards where you will find the highest proportion of disparities in health.

Dental caries is a common chronic disease affecting the teeth and has global distribution. Caries in children is specifically a major public health issue.

A recent survey commissioned by PHE indicated 27.9% of 5 year olds in England have tooth decay, Department of Health (2012). The survey also revealed:

- Children with decay have on average between 3 and 4 teeth affected by decay, treated or untreated.
- 24.5% of children have untreated decay.
- 1.7% of children have sepsis (infection) in their mouths.

This national survey found that 43.4% of five-year-olds in Hull have tooth decay, compared with the national average of 27.9%, there clearly is a local problem which most certainly needs to be addressed.

The survey also revealed 39.2% in Hull and 20.1% for the East Riding suffered from untreated decay. Figures for the Yorkshire and Humber region show 29.3% were not undergoing treatment to tackle the decay.

Undoubtedly, encouraging parents to access dental treatment for their children should be high on the agenda, as should raising the awareness of the importance of regular tooth brushing with a fluoride toothpaste and the provision of dietary advice.

In the time period from October 2012 and December 2013, 693 children experienced



a General Anaesthetic (GA) for dental extractions in the Hull and East Riding area, with the highest cohort (131 children) being five years old.

Even more disturbingly, 21 children from the youngest cohort were only two years old.

When you consider that a child is not expected to have a full complement of primary dentition until they reach the age of three, it is clearly evident there is a necessity for the programme to be expanded citywide.

Increasing the number of nurseries involved in the programme, will ensure good oral health care starts as early as possible and will hopefully reduce the prevalence of general anaesthetic experience in infants and young children.

Even high income industrialised countries where 5-10% of public health spending is used for oral health care, find treating dental diseases as an economic burden. Petersen et al (2005). Moreover, decay levels are highest in the more deprived local authorities.

The cost of treatment is considerable. Treatment of dental caries in children, particularly at the younger cohort, often results in general anaesthesia (GA) for multiple extractions. This is an expensive treatment, (estimate of £719 per secondary care episode) NICE (2010), with high levels of emotional and physical distress for the children and parents, and is not without risk.

Based on NICE (2010) guidelines, that a general anaesthetic session provided for a child costs in the region of £719, we can assume the expense of providing these sessions locally would undoubtedly exceed the annual running costs of the programme.

Even in the older cohort, management in primary care can be difficult, especially in an irregular attender who may present late in

the caries process. They may require extraction or endodontic treatment, with local anaesthetic or sedation, or even general anaesthesia where anxiety or treatment complexity indicates.

Within this population group undoubtedly a strategy for prevention is paramount to reduce the caries risk and the inequalities in oral health.

The aim of the Teeth Team programme is to reduce the inequalities in oral health among children. This is addressed by facilitating a supervised tooth brushing programme, with the addition of dental assessments and applications of fluoride varnish.

Unfortunately for many children taking part in the programme, the only time they do brush their teeth is when they are at school.

The children are given six monthly dental assessments at school and those children who are identified as requiring dental treatment are offered treatment at the dental practices that support the schools in the programme.

5,110 children received a dental assessment in the last round of bi-annual assessments carried out in the time period from October 2013-January 2014.

Our records indicate there has been an increase in the number of children now accessing dental care at these schools as a direct result of the programme.

However, it was noted that 470 children who required dental treatment at the previous assessments in May 2013 have not accessed dental treatment which gives cause for concern.

Fluoride varnish applications are included in the dental assessment process and those children whose parents have consented, will have topical fluoride applied to their teeth, if the examining Dentist feels it is clinically necessary.



Fluoride varnish has been clinically proven to reduce the incidence of tooth decay in children by up to 50%. We feel this is an essential element of the programme as those children who do not receive routine primary dental care will at least benefit from the preventive action of the topical fluoride.

The Department of Health (2009) also recommends the application of fluoride varnish bi-annually and up to four times a year for those children giving concern in their "Delivering Better Oral Health Toolkit". A summary of the report can be found as an appendix to this report.

Many studies evaluate the effect of fluoride varnish in preventing caries in children, including 46% reduction in caries (Watt 2005).

Peyron et al (1992) showed a significant reduction in caries progression in 3-6 year olds after bi-annual application.

Seppa (2004) mentions studies providing good to limited evidence about preventive action on children (e.g. Clark et al, Malmo study, Zimmer et al and Autio-Gold et al).

Naturally one needs to consider the cost implications of implementing the applications of fluoride varnish into the programme. Limited or inconsistent evidence is available regarding monetary benefits of fluoride varnish preventive programmes.

Niessen (1984) showed cost effectiveness analysis (CEA) of fluoride rinse without including intangible benefits was \$6.28 – a significant saving of treatment cost, while Klock (1980) showed the same to be poor.

Klock also states reviews by Davies and Horowitz & Heifetz showed fluoride prevention programmes have more favourable CEA, reduced treatment cost and dentist hours.

A systematic review by Kallista et al (2003) showed limited evidence of cost

effectiveness of fluoride varnish programmes, but Lindhe (1973) reported the cost of varnish as half that of treatment, though details of CEA were not given.

Many studies on cost benefit and cost effectiveness were short term, but prevention programmes using fluoride varnish might be cost effective in the long run (Weintraub, 2003). Long term studies are needed to validate this.

Since the conception of the partnership, concise records of the clinical data collated at each of the dental assessments has been recorded. The data details the level of treatment need, be it primary or secondary care, dmft levels and the numbers of children who have accessed dental care.

Our findings support Weintraub's theory. The cost effectiveness of fluoride varnish applications within a prevention programme, compared to the cost of providing dental treatment is undoubtedly more favourable.

Additionally, consideration should also be given to the reduction of the emotional and physical distress experienced by the children themselves.

The Child Smile in Scotland recently released data to show the cost effectiveness of their programme which is not dissimilar to the Teeth Team programme. Macpherson, L.M., et al (2013).

Teeth Team has undertaken a cost effective analysis, using the baseline data and current data from a sample section of children in the programme.

We can confirm there has been significant cost saving when comparing the original level of treatment need in these children in relation to primary dental care and the present level of treatment need. Further details can be found later in this report.



Over the past three and a half years, the programme has gained momentum and support from a number of organisations and individuals.

In 2012 the programme was awarded the Patron's Prize for Innovation from the National Oral Health Promotion Group.

In 2013, Dr. Nigel Carter, OBE BDS LDS (RCS), Chief Executive of the British Dental Health Foundation, fully endorsed the programme whilst visiting a local primary school.

In 2013 and 2014, the Rt. Honourable Alan Johnson MP, Graham Stuart MP, Karl Turner MP and Diana Johnson MP, all pledged their support and offered to assist in the expansion of the programme to enable more children to participate.

Finally, on 24th January 2014, the programme was awarded the national prize for the "Best Child Dental Health Initiative" at the Dental Hygiene and Therapy Awards at the Barbican Centre, London.

Teeth Team Limited currently supports over 9,600 children at 30 primary and nursery

schools in the Hull and East Riding area. Furthermore, two secondary schools have recently signed up to the programme which will add a further 1,500 children.

The partners in the programme are fully committed to ensuring Teeth Team is sustainable. They have formed a limited company which is registered at Companies House. In addition to this, there is an application with HMRC for registering Teeth Team Limited as a charity.

Teeth Team Limited has two directors and a company secretary. The board of trustees consists of three dental practice owners, a member of the Hull Clinical Commissioning Group (CCG), and Head teachers from schools participating in the programme and dental care professionals who are all stakeholders in the company.

It is hoped in the near future, Teeth Team will be successful in securing external funding to allow the programme to become a citywide initiative where there will be the potential to positively impact on the oral health of all local children.



SUPERVISED TOOTH BRUSHING PROGRAMME WITH CLINICAL DENTAL ASSESSMENTS & APPLICATIONS OF FLUORIDE VARNISH

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INTRODUCTION

Despite some improvement in the dental health of children in England during the past 30 years, inequalities continue to exist between and within different regions of the country (Davies G.M et al BASCD 2002).

The oral health inequalities found in dental caries levels are pronounced amongst school children. The greatest inequalities are predominantly in areas of social deprivation where the highest disparities in health inequalities exist.

The oral health of children in Hull and the East Riding is similar to England and Wales as a whole, however within the area there are significant inequalities.

The prevalence of dental caries in England is still a specific cause for concern and remains a significant public health problem.

The Teeth Team programme, now entering its fourth year, has seen the programme develop from a small community based project to a nationally recognised, award winning programme.

The bi-annual dental assessments in particular continue to be very popular with over 5,545 parents giving positive consent for their children to be included.

Parents of those children who were identified as requiring dental treatment were notified and information was given on where and how to access dental treatment for their child.

This element of the programme was intended to encourage children and their parents to bring about a positive attitude to oral health, the subsequent establishment of good oral hygiene habits and regular dental attendance.

Although more children who are involved in the programme are now accessing primary dental care than at the beginning, there continues to be a high percentage of children not accessing dental services and some of these children now require urgent dental care.



BACKGROUND INFORMATION

Oral Health Strategy (DoH 1999) stated by the year 2003 –

- 70% of 5 year old children should have no decay experience.
- On average 5 year old children should have no more than 1.0 decayed, missing or filled primary teeth.

Recent epidemiological data confirms this objective was not achieved locally. Department of Health (2012).

Tooth decay among 5 year old children in Hull continues to be a health problem. There is no evidence to confirm there has been any improvement in the situation over the last two decades.

43.4% of five-year-olds in Hull have tooth decay, compared with the national average of 27.9%. This not only impacts significantly on the individual child, but also the costs to society are high.

The incidence of tooth decay in the primary dentition is measured using the dmft(t) index (decayed, missing and filled teeth). A five year old child normally has 20 teeth therefore the dmft(t) value can range from 0 to 20.

Within Hull in 2012/13, the average dmft for five-year-old school children was 1.54. This places Hull sixth in the Yorkshire and Humber region of 15 cities for tooth decay among its five year olds. Department of Health (2012).

543 Dental Centre currently holds the contract for dental extractions under General Anaesthesia (GA) in the city of Hull. For auditing purposes, 543 Dental Centre

has collated specific data from the GA sessions for analysis.

In the time period from October 2012 and December 2013, 693 children between the ages of two and 16 years, experienced a GA for dental extractions in the Hull and East Riding area, with the highest cohort (131 children) being five years old.

48% (335) of all children who experienced a GA within this period were between the ages of five and seven years old.

Alarming, there are on average 46 children who attend the Day Care Unit at Hull Royal Infirmary for dental extractions each month.

Many of these extractions could possibly have been prevented if the children had accessed routine primary dental care when the early decay could have been treated, rather than emergency dental care at a later stage when the only option is extraction. Sadly, dental caries is largely a preventable disease, but is often considered insignificant in comparison to other diseases.

After analysis, we can confirm that the highest proportion of children who experienced a GA reside in the HU6, HU7 and HU9 postcode areas of the city. These locations are situated within some of the most socially deprived electoral wards in Hull.

The oral health of 5 year old children in Hull and East Riding of Yorkshire does not show any significant improvement when compared to the previous 1999 survey. In the Hull area there has been no improvement since the surveys began in 1985.



It is well documented that the main cause of dental caries is sugar in the diet. Fluoride is the only factor that has been shown beyond doubt to decrease susceptibility to decay and that the single most important oral hygiene measure is tooth brushing (Scottish Health Education Group 1986).

Previous studies involving teacher supervised tooth brushing programmes, using fluoridated toothpaste aimed at primary school children, have shown a significant reduction in dental caries especially among caries-susceptible children (Jackson RJ and Newman HN et al 2005).

The data collated from the dental assessments carried out at all of the schools in the programme has been included in the results section of this report.



Dr. Nigel Carter, OBE observing one of the bi-annual dental assessment and fluoride varnish application sessions with John Groombridge, GDP, Ingrid Perry, Teeth Team Co-ordinator and a pupil from Francis Askew Primary School.



Dr. Tony Jenner, OBE, presenting the Patron's Prize for Innovation to Ingrid Perry, Teeth Team Co-ordinator and Chris Groombridge, Director of Teeth Team Limited.

In June 2012 the programme was awarded the Patron's Prize for Innovation by the National Oral Health Promotion Group.

In March 2013, Dr. Nigel Carter OBE BDS LDS (RCS), Chief Executive of the British Dental Health Foundation endorsed the programme.

Carestream Dental, one of the largest dental software suppliers in the world, very kindly offered to support a new school in the programme in October 2013. The company now supports over 400 children at Christopher Pickering School in Hull.



L-R: Jane Guinn, Chief Executive of Carestream UK; Simon Garthwaite, Carestream; Julie Fountain, Head Nurse at 543 Dental Centre Limited; John Groombridge, GDP & Chair of 543 Dental Centre Limited; Emma Latimer, Chief Officer of NHS Hull Clinical Commissioning Group; Chris Groombridge, MD of 543 Dental Centre Limited; Cheryl Hayes, Education Services & Marketing Manager, Carestream; Malcolm Joslin, Communications & External Affairs Manager, BP Acetyls Europe and Form Tutor at Christopher Pickering School.



In November 2013, Rt. Hon. Alan Johnson MP endorsed the programme. He said: "This is a superb, marvelous programme. Fluoride is key for children and their teeth, so this programme added with water fluoridation will give poor kids' rich kids' teeth. I fully support the programme and will help in whatever way I can to expand it."



Rt. Hon. Alan Johnson MP pictured with pupils from Francis Askew Primary School, Hull.

We have gained further support from Karl Turner MP, who said: "I was delighted to visit Griffin Primary School today to see the excellent work that the Teeth Team does in educating local children in dental health and hygiene. This is an essential programme sponsored by local dental practices which I am keen to help promote. We suffer with

poor dental health in East Hull and this initiative will help prevent poor dental health in the future."

Additional support also came from Graham Stuart MP who fully endorses Teeth Team and all it stands for by saying: "The Teeth Team programme is creating good habits at an early age. By instilling the right techniques of brushing your teeth, including dry brushing, at an early age it's going to make a difference for the future and these children's teeth. It's great; all the children looked to be really enjoying brushing their teeth in school. Teeth Team is a no brainer, not only do I fully support this programme, I want it to go out further and wider and certainly I would like to get this programme into every nursery and primary school in my constituency."

Furthermore, Diana Johnson MP has also pledged her support for the programme and is scheduled to give her endorsement in March 2014.

The application of Fluoride Varnish was piloted at Francis Askew Primary School in November 2012 and has gradually been introduced into further schools over the last year.

The protocol for educating parents on the benefits of having fluoride varnish applied to their children's teeth was repeated as detailed in the previous report published in July 2013.



Karl Turner MP pictured with Ingrid Perry, Teeth Team Co-ordinator and pupils from Griffin Primary School, Hull.





Graham Stuart MP pictured with some of the partners of Teeth Team and pupils & staff from Leven Primary School.

Teeth Team staff attended numerous parents' evenings and other social events at the schools where parents would be present.

They provided information on the risks and benefits of the application of the varnish and demonstrated how the applications would be carried out using tooth models.

This ensured that parents were able to make an informed choice as to whether or not to provide consent for their child to take part. It also reassured the children there was nothing to worry about and that it was simply a case of painting their teeth!

Information leaflets, consent forms and medical and dental history forms were also given to the parents for completion.

Information training was also provided to members of the schools administration teams so that they would be equipped to answer parents' concerns at a later date should the need arise.

The completed forms were carefully screened, ensuring only those children who were suitable to receive an

application of fluoride varnish, were in fact the only recipients.

Any child with contra-indications did not receive an application of fluoride varnish and the child's parents were informed of the reasons why their child was unable to be included on this occasion.

In total 69% (2666) parents when asked, consented to the fluoride varnish applications.

1,900 children subsequently received an application of fluoride varnish at the time of the dental assessments. Eight schools have yet to have applications of fluoride varnish implemented into their dental assessments and it is hoped these remaining schools will be included in the next bi-annual round of dental assessments.

Aftercare instructions were provided for the children to take home to their parents which included the contact details of the Teeth Team should any parent feel it necessary to contact us in the event of a query or a concern.



A small number of parents indicated they wished to be present whilst their child received the fluoride varnish application. This request was accommodated with ease at either the beginning of the school day when the parent dropped their child off or at the end of the school day when the child was collected.

This parental involvement also gave the opportunity for the dentist to discuss with the parent any dental treatment required and what options may be available to them.

Some of the younger children in Foundation Stages 1&2 (3-4 years) for whom parents had provided consent did not receive applications of fluoride varnish.

The examining Dentist felt that as this was most likely to be the first time these children had been seen by a dentist, it was in the best interest of the children to only have an assessment on this occasion and to apply the fluoride varnish at the next dental assessment in six months' time. In total 542 children were not included for this reason.

The remaining children whose parents had provided positive consent, but did not receive applications of fluoride varnish were either absent on the day of the assessments or there were contra-indications present.



AIMS AND OBJECTIVES

Aim

To evaluate the programme in order to highlight successful areas and improve current resources.

Objectives

- To determine children's opinions regarding the Teeth Team programme.
- To confirm whether the Teeth Team programme is having a positive effect on the oral health of the children.
- To identify children requiring dental treatment and to assist parents in accessing necessary treatment for their child.
- To provide applications of Fluoride Varnish for those children where it is deemed clinically necessary as a preventive measure.

METHODOLOGY

The relationship between the schools and the partners within the Teeth Team continue to grow stronger as time moves on. This excellent working partnership is fundamental in attempting to reach 100% of the target group.

Teeth Team has a board of Trustees who are all stakeholders in the programme. They include four Head teachers representing the primary schools, three dental practice owners, the Chief Officer of NHS Hull Clinical Commissioning Group, the Programme Coordinator, a Dental Health Educator and a Public Relations Consultant.

Regular updates are given to all partners who support the programme including the Head of Henry Schein Dental in the United Kingdom (UK), the Communications and External Affairs Manager for BP and the Chief Executive of Carestream, ensuring all parties are kept abreast of any developments.

The initial sample group was made up of 12 schools, all supported by 543 Dental Centre and Henry Schein Dental. As the programme progressed, additional schools have since joined the programme, some of which have been included in the pilot study.



Unfortunately, Thanet Primary, one of the 12 original schools in the pilot received notification from OFSTED informing the school that an inspection would be taking place on the date which had previously been allocated for the dental assessments.

The school was unable to rearrange the dental assessments prior to the writing of this report. Therefore, the clinical data from this school will be included in the next bi-annual report.

The clinical data from the additional schools has been collated and are recorded separately from the 11 original schools in this report.

543 Dental Centre has increased its commitment to the programme and now supports 25 schools, two of these schools are supported jointly with BP and Carestream UK.

East Hull Dental Centre has adopted a further two schools, bringing the total number of schools they support to five and one of its existing schools has extended the programme to now include the whole school.

Chris Ayer Dental Surgery currently supports two schools, with one of these schools also recently extending the programme to include the whole school.

The data from five of the schools supported by these two partners are included in the study, but as before, their clinical results have been recorded separately from the main pilot schools.

Written parental consent was obtained for all children as was the case for the existing schools in the study. A letter was sent to all parents requesting permission for their child to take part in the study.

The parents were made aware that they were consenting to their child having a

dental assessment every six months. This would ensure only one set of consents was needed, thus reducing the workload of the administration staff at each school.

Once the consents had been returned to each school, the child's UPN (unique pupil number or name) was entered onto a database held by the school.

DATA COLLECTION

As had happened at previous assessments, each child would present wearing a sticker displaying their UPN/name, or if they had previously been assessed, the child would be holding their record card. The dental assessments were carried out by a Dental Practitioner from one of the dental practices and the clinical data detailing the dmft was recorded on a dental record card by a Dental Nurse, which was later transferred to a database.

After each dental assessment had been undertaken, the child was asked to complete a short questionnaire.

The purpose of the questionnaire was to determine both the tooth brushing habits of the child and their views regarding the Teeth Team Programme.

All completed questionnaires and clinical data were collected and returned to the Teeth Team Coordinator for analysis.

Those children, for whom parental consent had been obtained for the application of fluoride varnish, had Duraphat VarnishTM applied by a dental nurse who had undertaken specific training in the application of fluoride varnish, only if the examining dentist considered it to be clinically necessary and if there were no contra-indications.

Verbal and written post-operative instructions were given to the child to take



home. The teaching staff who accompanied the children were also advised the children should refrain from eating and drinking for one hour after the application of the varnish.

Once all the dental assessments were completed the details of any child who was identified as requiring dental treatment was entered on to a letter for parents and the school administration staff completed the remainder of the child's details.

The letter informed parents their child required a further dental assessment and/or dental treatment. Contact details were included of where treatment could be accessed locally for their child if they did not already have a family dentist.

The letter also had a tear off section which was to be completed and returned to school to acknowledge they had received the letter.

TARGET POPULATION AND SAMPLE SIZE

The target population was identified as **5,545** Primary School Children from Foundation Stage (aged 4) up to Year 6 children (aged 11) attending **24** primary schools in Hull.

5,110 children composed **92.2%** of the sample size. The difference in the target population and the sample size is due to some children being absent from school on the day of the assessments.

RESULTS

Children's Questionnaire Data

Due to the nature of the study a high number of children's questionnaires were completed (4,201).

There is a slight difference in the number of children who were assessed and those who completed the questionnaire due to some children being unable to understand the English language.

The majority of these children were from Eastern Europe. A high proportion of these children for whom English is a second language, resided in the west of the city.

In addition to this some of the children in Foundation Stage 1, appeared to be a little shy and did not wish to answer the questions.

The children were asked a series of questions, the first one being whether they enjoyed the dental health education session. Figure 1 details their responses.

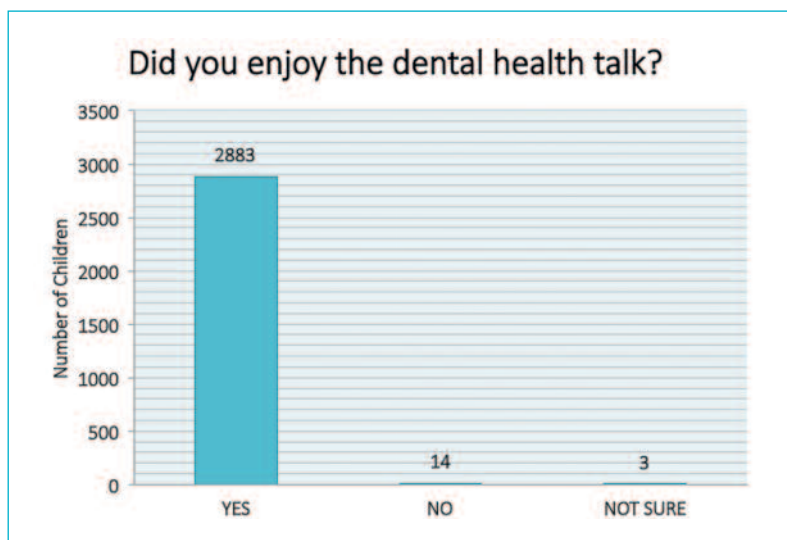


Figure 1



The children were then asked if they liked brushing their teeth at school and also if they brushed their teeth at home. Figures 2 & 3 detail their responses.

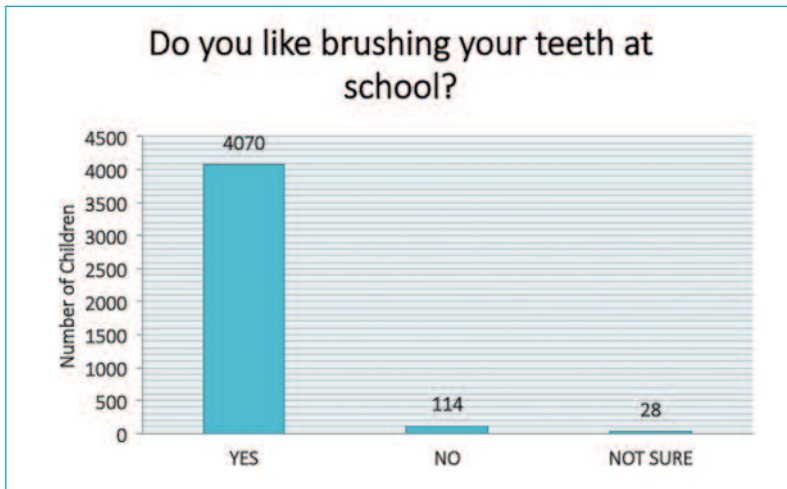


Figure 2

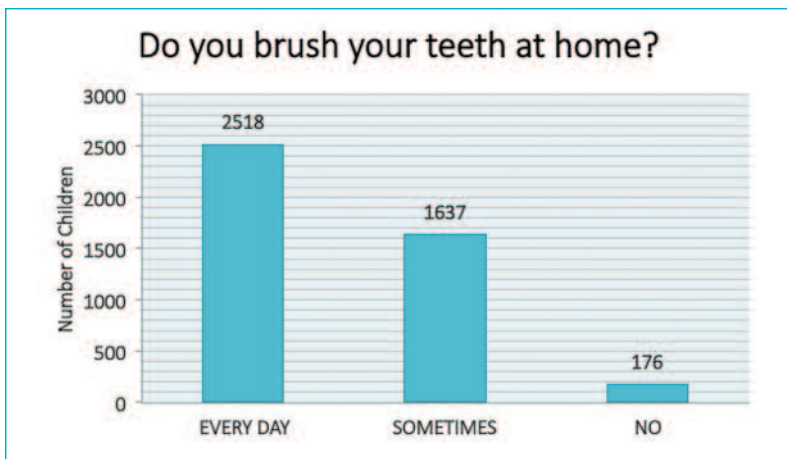


Figure 3

Of the children who answered “**sometimes**” this was usually less than three times a week.

Question 4 of the questionnaire asked the children what they liked best about the Teeth Team Programme. Their answers are detailed in figure 4 below.

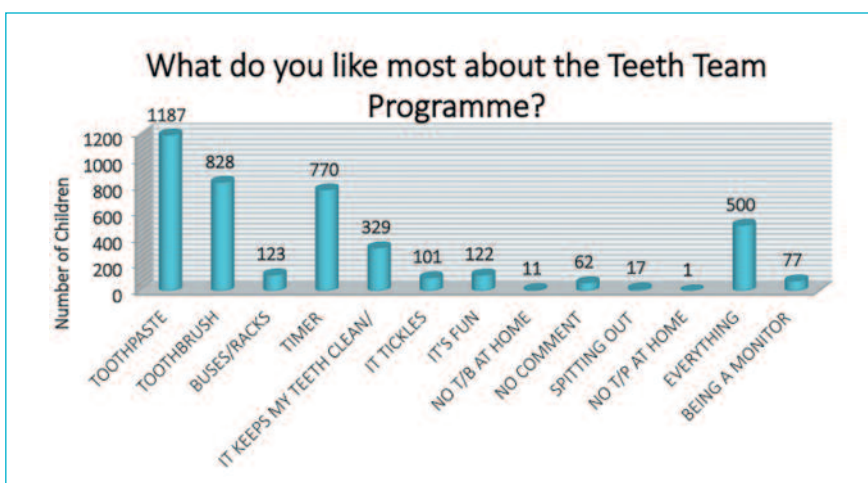


Figure 4



Toothbrushes and toothpaste were the top answers, but you can also see the timer proved to be popular too.

Many schools still use the original fiery ideas timer which was introduced to them when the programme was first implemented into the school, but an increasing number of schools are now alternating the timer with a variety of music genres which they play for the recommended two minutes.

This not only ensures the children brush for the correct period of time, but also

increases their knowledge of music and allows them to experience some genres which they may not have experienced previously.

The final question was asked to determine how many children had visited the dentist since they were last seen at school.

It was hoped the information obtained from the results of this question would confirm the reason why the number of children who previously had untreated decay was so high.

Figure 5 details their responses.

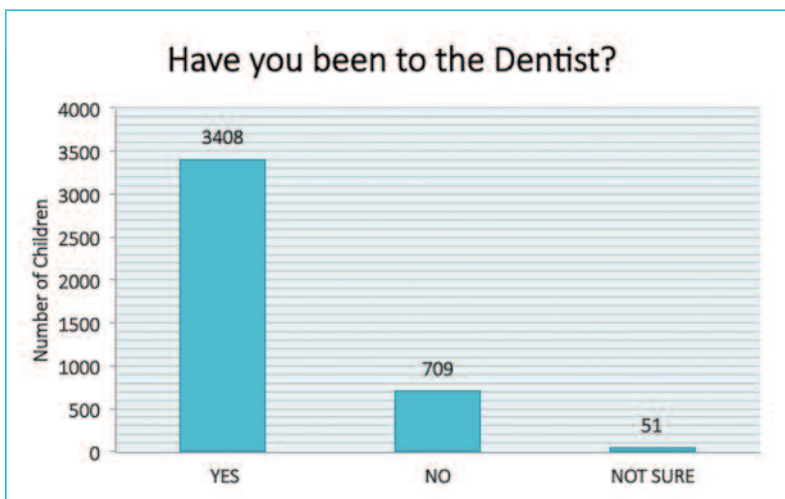


Figure 5

Clinical Data

In total **5,110** children received a full dental assessment. A record of all decayed, missing, filled and sound teeth was collated for each child.

This data has been placed on a data base so that a comparison can be made after each round of bi-annual dental assessments has been completed.

Due to the fact there are now three partners providing dental assessments we have segregated the results accordingly.

Below are the clinical results for each individual partner.



543 DENTAL CENTRE SUPPORTED SCHOOLS

Data collated from the original sample group of 11 schools

1,315 of these children were from of the original sample group.

The assessments concluded from this round of data collated that 280 (69%) of these children were identified as requiring treatment six months previously and have still not received dental treatment.

As mentioned earlier in the executive summary, data has been collated from all of the dental assessments in order to evaluate the cost effectiveness of the programme.

The mean dmft has been recorded for the original schools for each of the four dental assessments carried out between March 2012 and January 2014.

Some may question the validity of this data as the examining Dentist has not been calibrated to BASCD specifications. However, in 2013 we undertook an exercise where dual assessments were carried out by a calibrated dentist and our dentist.

After collating the results from both sets of assessments, there was a difference of opinion in 18% of the prescriptions for treatment.

Further analysis indicated that 23% of these were related to permanent dentition and 77% to deciduous dentition.

In the cases of permanent dentition, the examining dentist from 543 Dental Centre had indicated on the record card that there was either very early lesions present and this was marked with a "watch" or enamel hypoplasia, either way, it was considered

restorative treatment was not appropriate at that time, whereas the calibrated dentist had charted it as a cavity.

In the cases of deciduous dentition, again, those early lesions were charted as a "watch" by the examining dentist and a cavity by the calibrated dentist.

Obviously, personal professional judgment plays an important part in determining whether to treat immediately or to monitor the situation.

The examining dentist from 543 Dental Centre Ltd has over 43 years' experience of treating children.

In his opinion, very early caries which would require the use of a high speed hand-piece (drill) would be marked with a "watch", the child would be seen every six months and treated at the appropriate time i.e. when you have the ability to intervene with a very small excavator, thus reducing the requirement of the high speed hand-piece, particularly on very young children.

Caries in a deciduous tooth which was due to exfoliate in the next four to six months, would not be treated, unless it was causing the child pain or a sepsis was present, in which case the tooth would be marked with a "/" meaning it needed to be extracted.

Despite the slight difference of opinion in a small number of cases, this exercise concluded that the criteria for treatment need was consistent in 82% of the cases which is a positive outcome for this programme.

Overleaf is a table detailing the mean dmft from each of the schools for the first and last dental assessments from the 12 original schools.



School	Mean dmft March 2012	Mean dmft January 2014
Bude Park	1.72	2.24
Francis Askew	2.81	2.11
Greenway Academy	2.36	2.82
Griffin	1.14	1.31
Highlands	2.34	1.68
Longhill	2.00	1.43
Maybury	1.85	2.07
St. Georges	1.81	1.66
St. Mary Queen of Martyrs	1.34	1.17
Stockwell	1.99	1.89
Thanet	1.89	N/A
Thoresby	1.35	1.18

In addition to this, data relating to the type of treatment need i.e. primary or secondary care has also been recorded.

In March 2012, 485 children from this group required primary dental care in the way of restorations and prevention treatment. Under the current dental contract, each episode of care would attract three units of dental activity (UDA).

Taking into consideration the average UDA value in the UK is £24.00, we can assume the cost of providing treatment for these children will be in the region of £34,920

$$3 \times \text{UDA} = \text{£72.00}$$

$$\text{£72.00} \times 485 = \text{£34,920}$$

In January 2014, 338 children from this group required primary dental care.

We can again assume the cost of providing treatment for these children will be in the region of £24,336

$$3 \times \text{UDA} = \text{£72.00}$$

$$\text{£72.00} \times 338 = \text{£24,336}$$

This means there has been a cost saving on primary dental care of £10,584

We must also take into consideration the cost of applying fluoride varnish at the two most recent dental assessments.

62 tubes of Duraphat TM have been used to date therefore, we can conclude the applications of fluoride varnish will cost in the region of £523.90 per annum.

$$62 \times \text{£8.45} = \text{£523.90}$$

Unfortunately, the number of children requiring secondary dental care has increased.

In March 2012, five children required extractions under a general anaesthetic, but in January 2014, that figure has risen to 59.



From the clinical data recorded, we can clearly identify why this figure has increased.

280 children from this set of dental assessments who were previously identified as requiring dental treatment have not accessed dental care. Many of these originally small lesions have, over time, increased in size and are now further down the line in the decay process and require extraction.

The potential cost implications for this treatment is significant, in comparison to providing primary care at the appropriate time.

Based on NICE guidelines (2010), where the suggested fee for undertaking dental extractions under GA is £719, we can assume the cost of providing secondary care for the original five children would be £3,595.

$$5 \times \text{£}719.00 = \text{£}3,595$$

However, the cost of providing secondary care to the 59 children who now require a GA will be £42,421.

$$59 \times \text{£}719.00 = \text{£}42,421$$

Taking into consideration the data collated for GA in Hull, we can identify where the highest area of need exists.

693 children experienced a GA for dental extractions between October 2012 and December 2013.

The following graphs show the postcode areas where these children live.

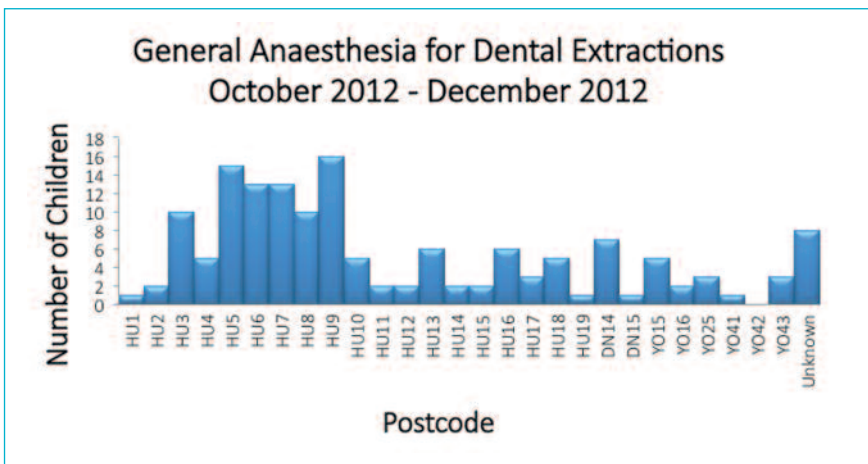


Figure 6

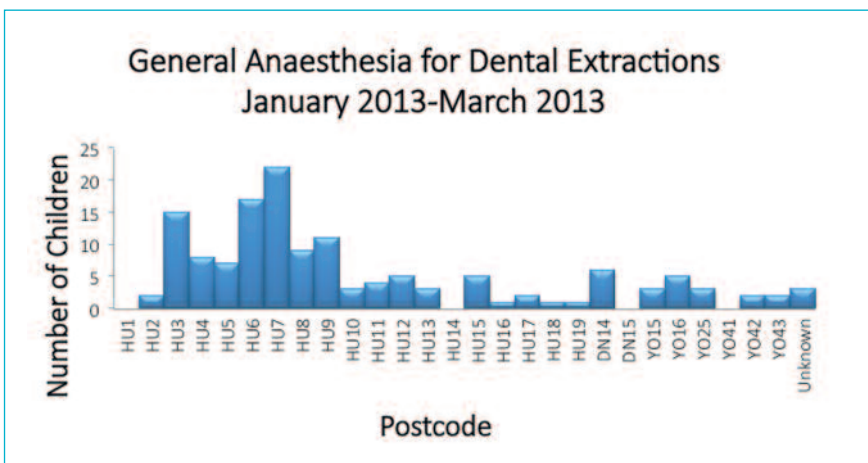


Figure 7



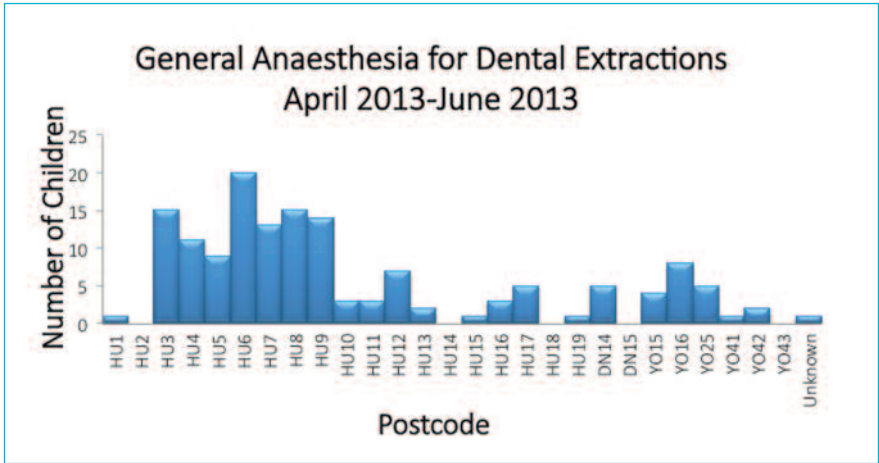


Figure 8

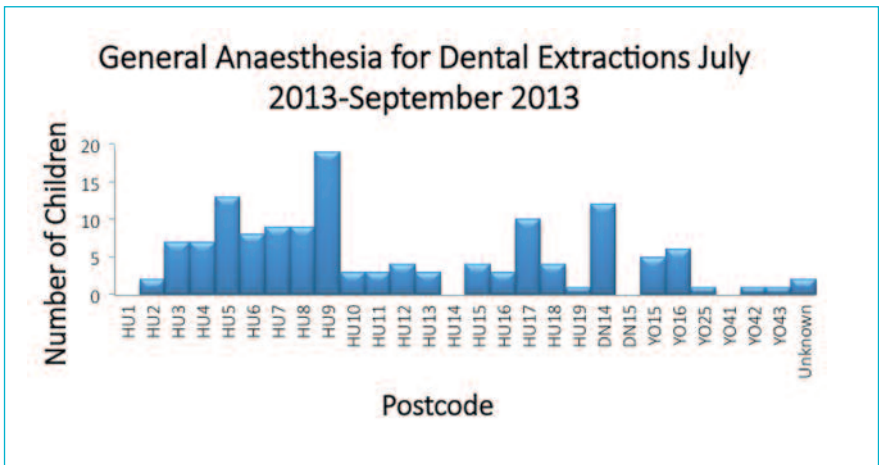


Figure 9

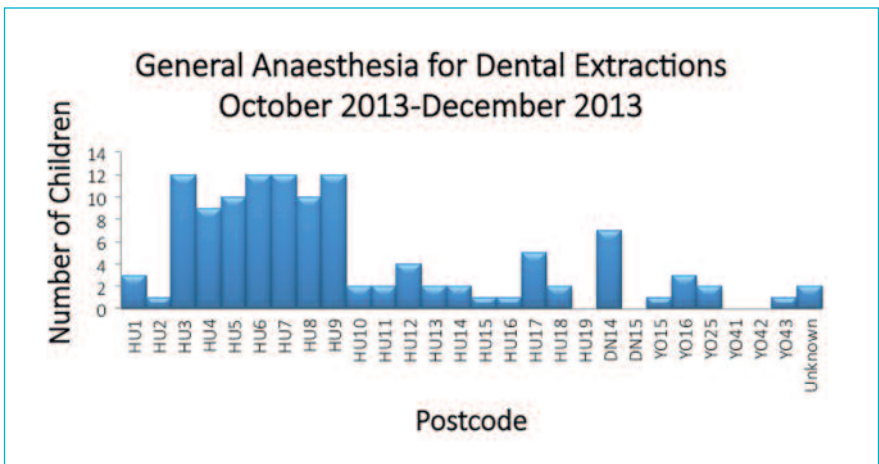
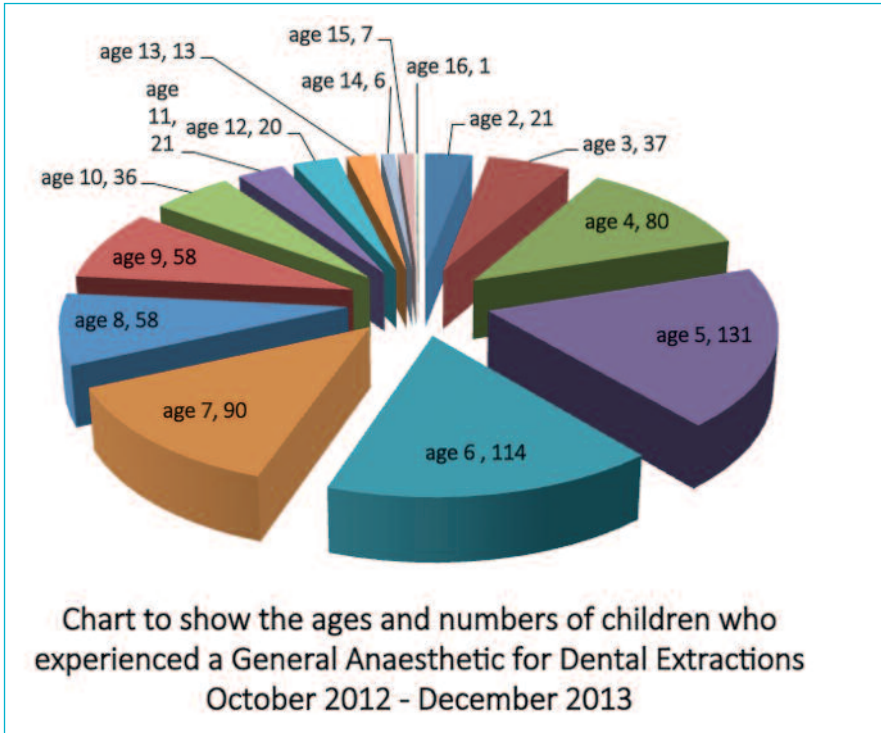


Figure 10





We can also identify the ages of the children who have experienced a GA in this time period.

Figure 11 demonstrates this data.

Figure 11

This data further supports the evidence previously submitted in the business proposal to the Hull City Council and NHS Hull CCG. The provision of self-drive mobile dental units sited on school premises will ensure equal access for all children.

One has to acknowledge there is an issue of child dental neglect locally and this is predominantly present in areas of severe social deprivation where you will find the most vulnerable children.

Simons, D., Pearson, N., and Evans, P. (2013) recently carried out a pilot study on the effectiveness of using mobile dental units at schools in order to address dental neglect.

The pilot aimed to demonstrate that:

- the use of a community-based mobile dental unit has the potential to remove barriers to dental care access.
- a mobile dental unit can be a cost effective means of providing dental care compared to alternatives.

- if all vulnerable children are to be reached local community networks and target populations' cultural and language issues must be considered.

The introduction of fluoride varnish applications means we have seen an increase in the number of children assessed at each school.

The schools in the programme have worked extremely hard to increase the level of positive parental consent for both the dental assessments and the applications of fluoride varnish.

They now have policies in place to ensure all children new to the school are signed up to the programme.

At the previous set of dental assessments carried out in July 2013, 4,131 children were seen. That figure has now risen to 5,110. This means an additional 979 children are now benefitting from the dental assessments.



This is extremely encouraging when you consider the children who were in year 6 at the time of the previous assessments have now left the schools, but the total number of children having the dental assessments has increased by almost a thousand.

In some cases this has resulted in the overall percentage of children requiring treatment at each school to increase.

Below are tables detailing the data from all of the schools who have been included in this set of dental assessments.

Schools supported by 543 Dental Centre

Name of school	Number of children assessed	No treatment required	Routine treatment required	Urgent treatment required	Percentage requiring treatment
Bude Park	201	98	99	2	50.2
Francis Askew	173	140	33	0	19
Greenway Academy	255	125	126	4	51
Griffin	244	200	27	17	18
Highlands	296	219	48	29	26
Inmans Hedon	353	253	99	1	28.3
Leven	120	103	12	5	14.2
Longhill	177	143	24	10	19.2
Maybury	134	101	24	8	23.9
Montessori	27	25	2	0	7.4
Sidmouth	241	196	45	0	18.6
Sproatley	110	85	25	0	22.7
St. George's	197	164	18	15	16.7
St. Mary's Queen of Martyrs	247	216	30	1	12.5
Stockwell	175	154	17	4	12
Thoresby	317	281	22	14	11.4
Wheeler	251	201	50	0	19.9

Figure 12

Schools supported by Chris Ayer Dental Surgery

Name of school	Number of children assessed	No treatment required	Routine treatment required	Urgent treatment required	Percentage requiring treatment
Newington Academy	240	151	64	23	36.2
Paisley	253	184	43	26	27.2

Figure 13



Schools supported by East Hull Dental Centre

Name of school	Number of children assessed	No treatment required	Routine treatment required	Urgent treatment required	Percentage requiring treatment
Alderman Cogan	316	263	53	6	18.6
Craven	135	91	42	2	32.5
Mersey	104	62	41	1	40.3

Figure 14

School Supported by Carestream UK

Name of school	Number of children assessed	No treatment required	Routine treatment required	Urgent treatment required	Percentage requiring treatment
Christopher Pickering	304	254	31	19	16.4

Figure 15

School Supported by BP

Name of school	Number of children assessed	No treatment required	Routine treatment required	Urgent treatment required	Percentage requiring treatment
St. Richard's	240	107	118	15	55.4

Figure 16

From the most recent assessments carried out at all of the schools in the programme from October 2013-January 2014, there is evidence to suggest 470 children who required treatment six months ago have not accessed treatment.

However, it was also evident some children had accessed treatment, but had not completed treatment.

3,408 children reported they had been to see a dentist since the last assessment, with 709 children indicating they had not.

This information leads one to assume some

children are accessing care, but a great many are not.

Some of the children who said they had accessed care showed no evidence of any treatment having been carried out.

Ultimately, it is up to the individual practitioner has to decide "Is it in the best interests of the child to go ahead and provide treatment or should I monitor the situation?"

This obviously comes down to personal professional opinion.



CURRENT POSITION

Since the introduction of fluoride varnish into the programme and the addition of new partners, the number of children now included in the study has increased from 2,113 to 5,545.

The implementation of fluoride varnish applications has enabled more children to benefit from the programme, not only from the preventive action of the fluoride itself, but also the opportunity to identify more children who may be in need of dental treatment.

Although more children have joined the study, many of these have not accessed any dental treatment previously and therefore, have untreated decay.

Figure 17 illustrates the treatment need for the total number of schools in the study in July 2013. A comparison can be made with figure 18 which illustrates the position in January 2014.

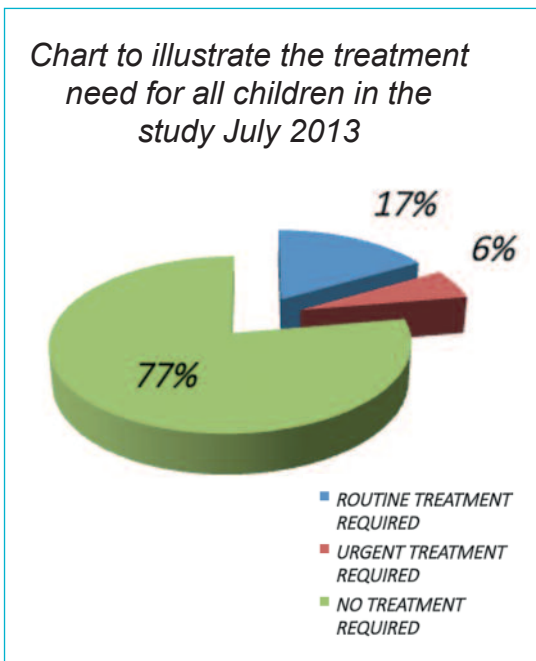


Figure 17

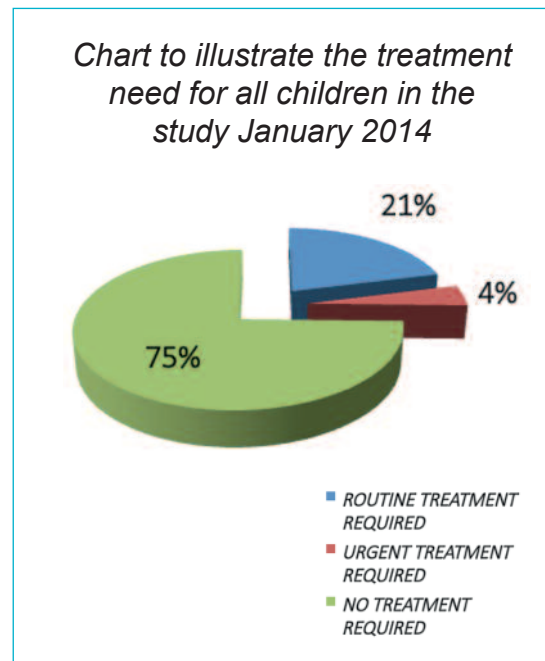


Figure 18

We can confirm there has been a slight increase in the overall percentage of treatment need from 23% in July 2013 to 25% in January 2014.

Given the increase in the number of new children to the study, this is not a cause for concern.



ACTIONS FROM PREVIOUS RECOMMENDATIONS

Broaden the range of dental professionals involved in the programme.

In the previous report it was recommended that we utilise Dental Therapists to undertake some of the dental assessments.

We had received written confirmation from the General Dental Council (GDC) that the Teeth Team programme can utilise the skills of Dental Therapists to carry out dental assessments on school premises.

This has been brought about by a change in the regulations for “Direct Access” by the GDC.

The programme currently has five Dental Therapists at their disposal, whose scope of practice will allow them to be involved.

It was our intention that for the round of dental assessments carried out between October 2013 and January 2014 we would use a combination of Dentists, Dental Therapists and appropriately trained Dental Nurses to see how this introduction of extra clinical expertise works.

Unfortunately, due to other commitments relating to the setting up of Teeth Team Limited and the withdrawal of one of the partners from the programme, we felt it was in the best interests of the programme to postpone this until the next round of dental assessments which are due to take place in the summer of 2014.

Further support for schools.

All of the partners continue to support the schools they are responsible for in the programme.

Relationships have grown stronger with head teachers and teaching staff and parents have begun to see us as someone who can help, rather than someone to be afraid of.

In November 2013 we held a Reception Evening for all of the schools who are supported by the programme.

The evening was very well attended with representatives from the majority of the schools taking time out to attend.

After a light buffet and refreshments, a presentation was delivered on the progress of the programme and the current position at the time.

A very productive discussion took place with many suggestions being put forward by Heads of schools.

A number of these suggestions have since been implemented and have already proved to be effective.



RECOMMENDATIONS

The results of this study have enabled us to make the following recommendations:-

Broaden the range of dental professionals involved in the programme.- as discussed in the previous section.

To streamline the documentation required for the programme in relation to consent forms and letters to parents.

To discuss this proposal with the local commissioning organisations, Hull City Council and NHS Hull Clinical Commissioning Group with a view to securing additional funding to ensure that the programme can be delivered to all primary schools

CONCLUSION

This pilot study has yet again proved beyond any doubt that partnership working is most definitely the only way forward.

By continuing to work closely with schools we have further succeeded in breaking down some of the barriers to accessing routine dental care and in the process improving oral health.

The reduction in the mean dmft of the original pilot schools clearly demonstrates the effectiveness of this programme and the potential cost saving for the future.

The increased requirement for secondary dental care is cause for concern, not only the cost implications, but also the psychological effects on the children in question.

The provision of mobile dental units would ensure that those children who have not accessed dental care and are obviously vulnerable and at risk of dental neglect will

receive the primary dental care they obviously need.

For whatever reason, their parents have failed to access care for them, which will increase the risk of them requiring secondary dental care in the future.

The Department of Health recently published a report by Professor Jimmy Steele (2014) on the NHS dental contract pilots – “Learning after first two years of piloting”. This is the second report from the dental contract pilots evidence and learning reference group.

The report stated: “The data shows that large numbers of “red” adults are returning for their reviews later than the expected recall intervals whilst large number of “green” adults are returning earlier than expected. Many “red” children are also returning for reviews later than expected.”



This only provides further evidence that those who have the greatest need are usually the ones who actually access care less.

The applications of fluoride varnish only enhance the programme to make it one which provides prevention, early intervention and equal access.

It is imperative we all work together in order to ensure parents are involved and for relationships and trust to be built between local providers of primary dental care and the families who are supported by the schools.

Teeth Team aims to follow some of Marmot's principles - giving every child a healthy start. By working closely with parents, providers of education and wrap around care providers we can help the most vulnerable children in our society.

The trustees of Teeth Team Limited are very proud of the achievements the programme has gained. These include:

- Over 5,000 children are now having regular dental assessments.

- 1,900 children have received applications of fluoride varnish, with more to benefit from this simple, non-invasive procedure later in the year.
- Over 9,600 children are now participating in the programme, with two secondary schools coming on-board in the coming months, adding a further 1,500 to the programme.
- The Teeth Team programme has the endorsement of the British Dental Health Foundation.
- All of the local Members of Parliament fully support the programme and have pledged to assist in its expansion.
- Teeth Team has won two national awards: "Best Child Dental Health Initiative" from DH&T Awards and the "Patron's Prize for Innovation" from the National Oral Health Promotion Group.

Only by continuing along this path with our evidence based programme will we see the inequalities in oral health amongst the children of Hull and East Yorkshire reduce.

ACKNOWLEDGEMENTS

The trustees of Teeth Team Limited wish to personally thank all of the partners for their continued support of the programme. These include:

- Henry Schein Dental Supplies
- BP
- Carestream UK

We would very much wish to also acknowledge the support of our local MP's.

And finally...as always, we would like to say a very big thank you to all of the schools and pupils who continue to take part in the study and to the parents who have provided consent for their child to be involved.

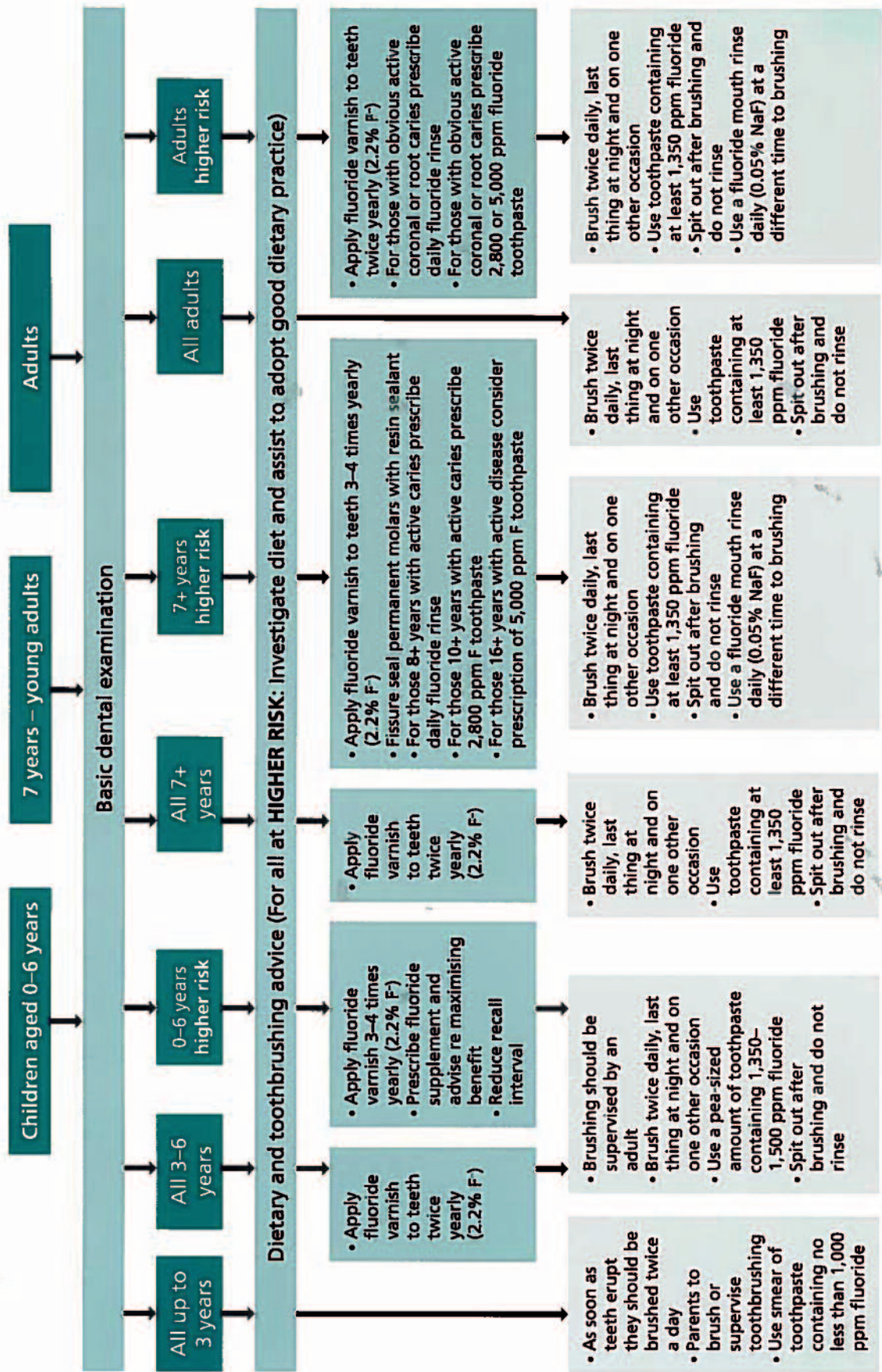


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Prevention and management of caries¹ - Individually tailored optimal daily oral care



¹ Based on 'Delivering Better Oral Health - An evidence based toolkit for prevention', Second Edition, Department of Health, July 2009.

