


AGENDA ITEM:

COMMITTEE:	Stockport Council Health Scrutiny Committee
DATE:	6 th January 2009
REPORT OF:	Lee Holden, Advisor In Dental Public Health and Laura Browse, Associate Director Primary Care. 
REPORT TITLE:	Dental decay in Children aged 5, 11, and 12 in Stockport

Overview

- The dental health of 5 year olds in Stockport is significantly better than their North West peers.
- By the age of 12 this advantage has been lost.
- The reasons for this change are complex.
- Dental decay experience varies with social status with those most disadvantaged having the worst dental health.
- To improve dental health oral health promotion programmes need to be targeted at the most at risk groups and especially to families and carers of the youngest children.
- Attending a dentist has to be encouraged from a very early age to support those most at risk from dental decay through the implementation of preventative interventions.
- Programmes to tackle obesity and poor diets in children will also result in improvements in oral health.

Measures of Dental Health

Surveys of children's dental health in the North West of England have been conducted since 1986. The dental health¹ of 5 year olds has been studied on a bi-annual basis and that of 12 year olds every 4 years (since 1987) until 2001 with the next proposed survey in 2008/9.

The studies have looked at the condition of the children's teeth. Each tooth is recorded as Decayed, or Missing (eg due to extraction), or Filled. If a tooth has a filling and some decay it would be counted as decayed. This score is represented by the initials dmft (t = total) for baby (deciduous teeth) and DMFT for adult teeth. The dmft/DMFT figures given here are the mean for the population being studies.

Stockport has been carrying out dental surveys since 1986 and has a considerable amount of data on children aged 5 years from the bi annual survey. Surveys of 12 year olds have been carried every 4 years and there is consequently less data.

In 1997/8 a census survey (examination of the whole population of the age group) of 5 year olds was carried out and this has been repeated in 2007/8 (results awaited).

There are 2 key principle indicators for dental decay, they are:

1. Decay levels; the sum of decayed missing and filled teeth in a child's mouth, the dmft in 5 year olds and DMFT in 12 year olds.
2. Prevalence; The percentage of children affected by decay, that is any child who has one or more decayed or filled tooth, and those who have one or more teeth missing.

¹ Dental Health is the health of teeth and Oral Health is the health of the whole mouth.

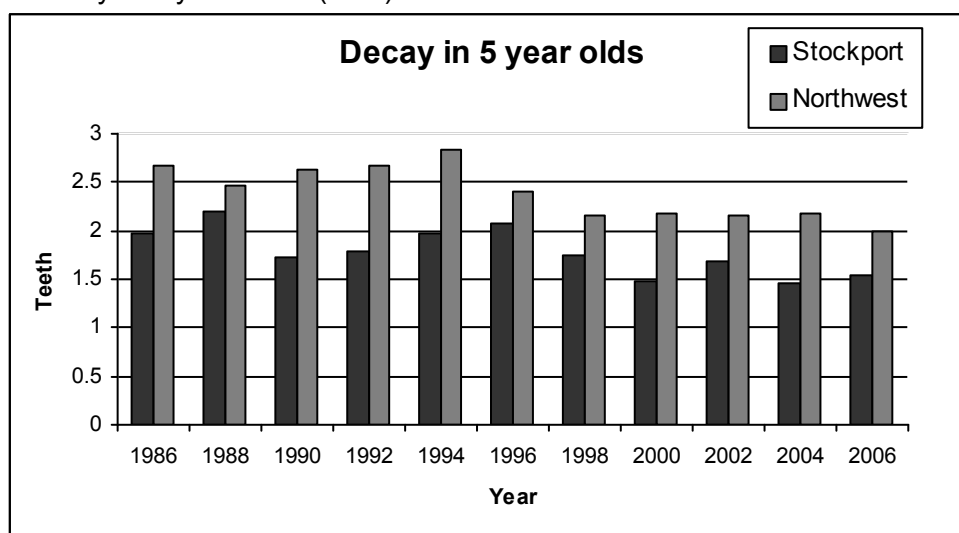
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Dental Health of 5 Year Old Children

The surveys for 5 year olds look at the back deciduous (baby) teeth; front teeth (the upper and lower incisors) can be shed by the age of 5 years and are excluded as are adult teeth which are usually not present at this age.

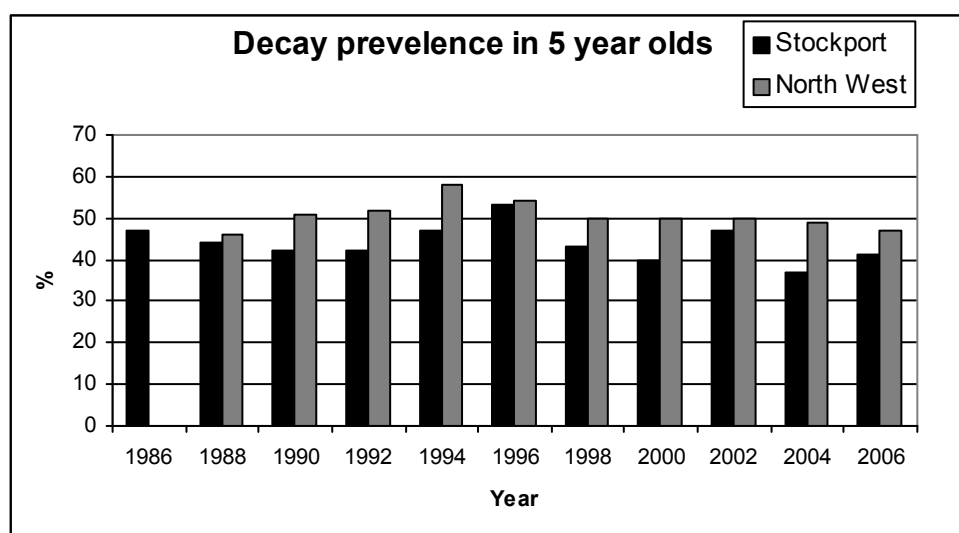
Because the surveys are conducted on a sample of the population the results have some latitude and it is the trends that are important.

Chart 1: Decay in 5 years olds (dmft)



The trend in decay levels is a steady decline since the first survey in 1986 from around 2 teeth per mouth to about 1.5 teeth in 2004 and 2006. This is a significant improvement in dental health for Stockport.

Chart 2: Decay Prevalence in 5 Year olds



A similar trend to decay is seen with prevalence. There has been a reduction in the prevalence of decay in 5 year olds from 47% in 1986 to 41% in 2006. The prevalence is lower than the North Western mean of 48%.

The initial information on the 2007/8 survey suggests that there has been an improvement in the dental health of Stockport 5 year olds – this data has not yet been checked for validity, quality etc so can not be published at this time.

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11 Year Old Children

A pilot survey of 11 year old children was undertaken in 2005 across the UK. The study showed that 11 year olds in Stockport have an average DMFT of 0.85 and prevalence 41.5%. This is compared to the North West with DMFT 0.93 and prevalence of 41% and England with DMFT 0.64 and prevalence of 30.1%

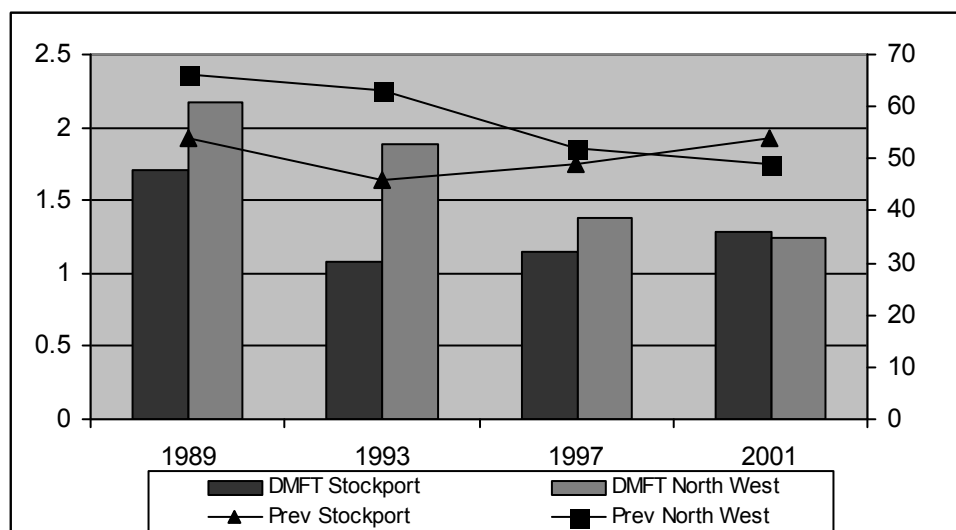
As will be seen in 12 year olds the better dental health seen in Stockport 5 year olds compared to their peers in the North West is not maintained into early adolescence. This is considered below.

12 Year Old Children

The surveys for 12 year olds look at adult teeth, deciduous (baby) teeth are excluded as they are usually lost at about this age.

As shown in Chart 3 is the decay and prevalence rates in Stockport 12 year olds are now similar to their peers in the North West.

Chart 3: Decay (DMFT) and Prevalence in 12 year olds



Decay levels in 12 year olds fell from 1989 to 1993. Subsequently there was a slight rise though this may as explained above be due to the data being sample and not population based. The decay levels from 1993 on may be static.

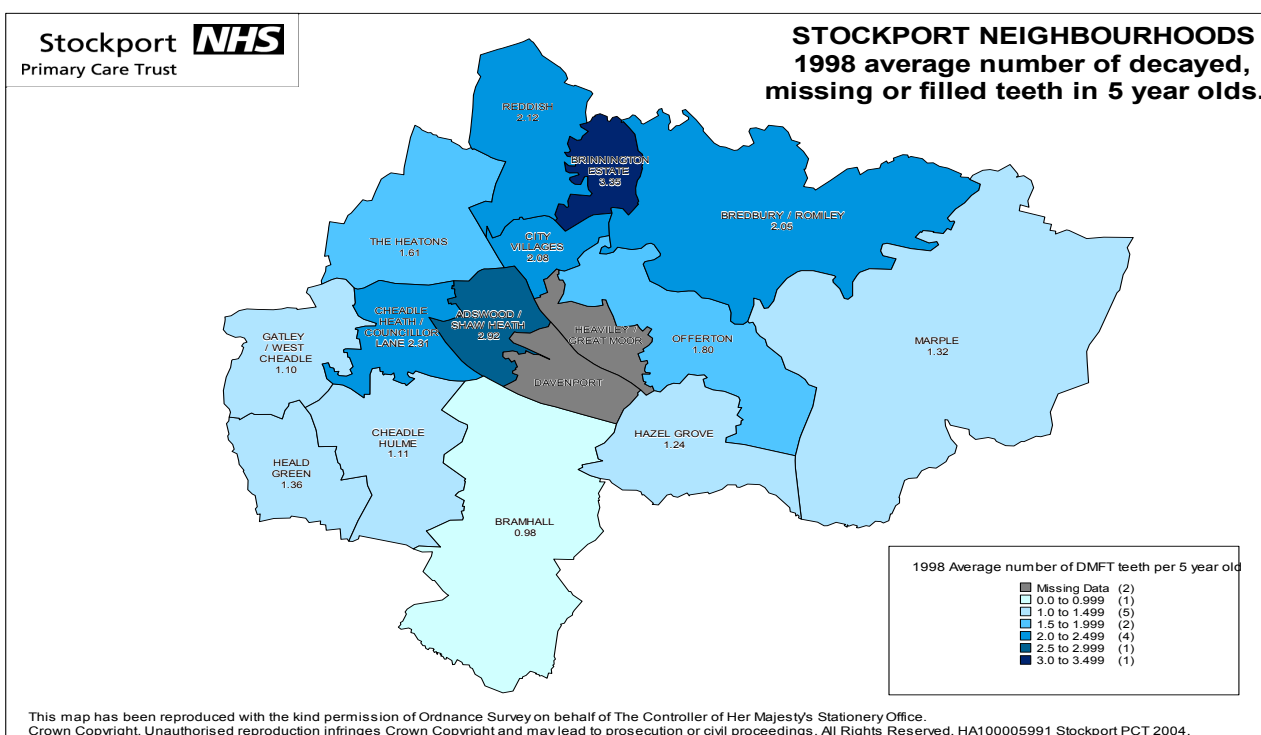
Prevalence has followed a similar pattern to decay probably due to the interplay of the same factors.

Deprivation and Dental Decay in 5 year olds.

It has been generally accepted that dental disease is worse in deprived groups. The national surveys support this with the poorest areas of the country (when not fluoridated) have the highest decay levels.

The 1997/8 survey of 5 year olds looked at as many children as possible. This enabled comparisons to be made across the wards of Stockport and confirmed the relationship between deprivation and higher decay levels. Decay (dmft) at ward level ranged from 0.5 to over 4.0. (see map below)

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In commissioning of oral health promotion and dental treatment services this information is useful for targeting services.

The Development of Dental Decay

One of the principle problems with dental decay is that it often starts in very young children and can be present from soon after the eruption of the teeth (6 months onwards). In addition once decay starts it appears to progress rapidly. A study in 2008² states:

... findings strongly suggest that once children contract the disease (dental decay) it progresses at the same rapid rate. It seems that the key development is the emergence of the first carious cavity and once this state has been reached, further cavity development in previously healthy teeth is highly likely.

In addition

When those children who were initially caries (decay) free but developed the disease during the follow up period were examined, their risk of developing new cavities (once they had contracted the disease) did not differ significantly from those who had caries on recruitment (to the study).

And

It is important to recognise that the majority of children attending dental practice present as caries free and remain in that state during the early years of childhood.

This finding is consistent with other studies in the literature, which demonstrate low levels of caries in regular dental attenders

The children who present decay free at the dentist are perceived by many to be at a low risk of developing the disease and providing prevention therapies to this group

² The incidence of dental caries in the primary molar teeth of young children receiving National Health Service funded dental care in practices in the North West of England, K. M. Milsom, A. S. Blinkhorn and M. Tickle, British Dental Journal, July 2008

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could be seen as a waste of time and resources. But as there are no tools to reliably predict dental decay it is not possible to target preventative care to any one group. Consequently a whole population approach is needed in dental practices to address the needs of their patients.

Explaining the differences between 5, 11, and 12 year olds.

Why is the obvious difference between Stockport and the North West present in 5 years olds is not replicated in (11 and) 12 year olds? Some of the factors may be:

1. Compared to 12 year olds 5 year olds are more under the control of parents regarding diet, oral hygiene etc.
2. 12 year olds are more influenced by peer pressures compared to 5 year olds. These pressures do not differ significantly, regarding diet, between affluent and less affluent areas.
3. 12 year olds are targeted by the junk food industry no matter where they live. 5 year olds are subjected less to this pressure but not excluded.
4. 12 year olds are much more likely to have disposable income to (ab)use as they please. 5 year olds are less likely to have significant amounts of money to spend while not being supervised.
5. Oral health programmes are primarily focused on young children.
6. Oral health programmes are primarily focused on schools in deprived areas.
7. With the mix of geographic populations in secondary schools targeted OH programmes are more difficult to deliver effectively based on need.
8. Although there is less input by the Oral Health Promotion service into schools, particularly in late primary and secondary schools, the evidence for the effectiveness of these Oral Health programmes for older children is not good.
9. Oral health product companies do not see 12 year olds as a target group in the way parents of young children are viewed.

Attendance at the Dentist in Stockport

The information currently available for the percentage of children seen in the NHS is limited. In 2007/8 there were around 60,000 courses of treatment for children (0 to 17 years) which was provided for 40,000 children, so approximately 75% of the child population have seen the dentist at least once between the beginning of April 2007 and end of March 2008.

There is no national or regional comparative data at present.

Action to prevent dental decay

The study referred to earlier³ also considers the prevention of dental decay and concludes:

Currently we have little hard evidence to tell us if, once started, the progression of disease can be slowed and, most importantly, if the risk of adverse outcomes such as pain, sepsis and extraction can be reduced. This is because trials measuring the effects of preventive interventions have not reported results separately for caries free children and for those with the disease.

³ The incidence of dental caries in the primary molar teeth of young children receiving National Health Service funded dental care in practices in the North West of England, K. M. Milsom, A. S. Blinkhorn and M. Tickle, British Dental Journal, July 2008

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It is therefore essential to ensure decay does not start. To achieve this needs a co-ordinated dental practice and public health approach.

In General Dental Practice

The majority of children who attend the dentist for the first time are decay free. But:
A recent study of the incidence of dental caries in young children regularly attending dental practices in the Northwest of England reported that one in four children who were caries free at their first visit went on to develop caries over a three year period and three out of four children who already had caries at their first visit went on to develop further cavities.⁴

In addition this work shows a 25% conversion rate of children from caries free to caries active over a three year period meaning that the largest numbers of cases of caries arise from the children who initially present caries free. The work referred to also suggests that whatever age caries starts in young children it progresses at the same rapid rate. Consequently if dentists concentrate active prevention solely on those children with caries they will be unable to prevent the majority of new cases of the disease in their practice population. As there are no tools to identify those who will develop dental caries a whole practice population approach is needed.

The Department of Health has produce evidence informed oral health guidance for GDPs to implement. This document "Delivering Better Oral Health (Department of Health 2007)" has gone to all GDPs. In addition the Department of Health has produced additional guidance aimed at prevention for people with disabilities; Valuing People's Oral Health (2007).

As a significant proportion of children in Stockport attend the dentist and of these a greater proportion will be late primary and early secondary school age the role of the GDP in preventing dental decay is important. In trying to ensure that decay rates in 12 year olds fall the role of the GDP will be influential. In March 2009 the current guaranteed period for GDPs contracts ends. The PCT intends to move to a contract which contains more performance indicators around oral health and Delivering Better Oral Health will inform these indicators.

Public Health Interventions.

There are many well established public health interventions key amongst which is the fluoridation of the water supply (see below).

Other interventions are well established in Stockport and have been led by the Oral Health Promotion Team of the PCT. This work has been targeted at children in pre-school and primary groups focusing on areas of high dental decay, and children and adults with special needs. These programmes have been delivered by a variety of groups including Health Visitors, Nurseries, Schools, etc supported by the Oral Health Promotion Team

These programmes have undoubtedly played a major part in reducing the decay levels by 25% in 5 year olds seen since 1986. The results of a study of all 5 year olds in Stockport (whose parents consented) will determine if there has also been a reduction in inequalities since the 1998 study.

Work to improve the poor diets of many children and to tackle obesity should also result in concomitant improvements in dental health by reductions in the intake of sugar (quantity and frequency).

⁴ The whole population approach to caries prevention in general dental practice Martin Tickle and Keith Milsom North West Strategic Health Authority. British Dental Journal Volume 205 No. 10 Nov 22 2008

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The PCT is currently reviewing its oral health promotion services. The aim will be to ensure that the public health interventions continue to be effective and to support GPs in implementing "Delivering Better Oral Health". It is expected that this work will be completed by the summer of 2009.

Fluoride and Fluoridation

The purpose of this paper is not to discuss fluoridation. However the majority of medical and dental professional opinion agrees that fluoridation of the water supply is both safe and effective.

Fluoride in the form of toothpaste is effective if the correct concentration of fluoride is in the paste and brushing commences as soon as a child's baby teeth erupt. In the most vulnerable groups the use of fluoride toothpaste is likely to commence later and the benefit to be significantly reduced. Any effective oral health programme would include toothpaste for young children as part of its action plan. The provision of paste and brushes to those in areas with populations with high decay experience has proved successful and is to be recommended.

The application of fluoride varnish by dentist or more cost effectively other trained oral health professional in their surgeries has an evidence base. Programmes involving applications away from a clinical setting such as at supermarket have been tried but not as yet evaluated. Families in the most vulnerable groups are those most likely to be irregular visitors to the dentist and often "with pain" attenders so any programme in the dental surgery will be less likely to reach those most at risk. However fluoride varnish application does form part of a whole population approach in Dental Practice.

The application of fluoride varnishes as part of public health programmes in schools is currently being researched. This approach could be targeted at children in the highest decay areas but faces obstacles around consent. This could be part of a holistic dental programme which facilitates access to a dentist for those in need of treatment. When the results of the current research are published this intervention will be reviewed.

The fluoridation of the water supply is government policy subject to local needs and consultation. Fluoridation of the water supply is being considered in the North West by the PCTs and the Strategic Health Authority. If implemented this would help reduce decay levels in all children and we could expect the current dental health of 12 years olds to improve.

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Conclusion

The factors causing dental decay are well understood. Sugar taken frequently and in any form is the causative agent.

Preventing dental decay in children would seem simple (avoid sugar) but in reality is difficult and complex. A number of factors lead people to have an intake of sugar that is both large in volume and frequent.

Improving oral health needs a six point approach:

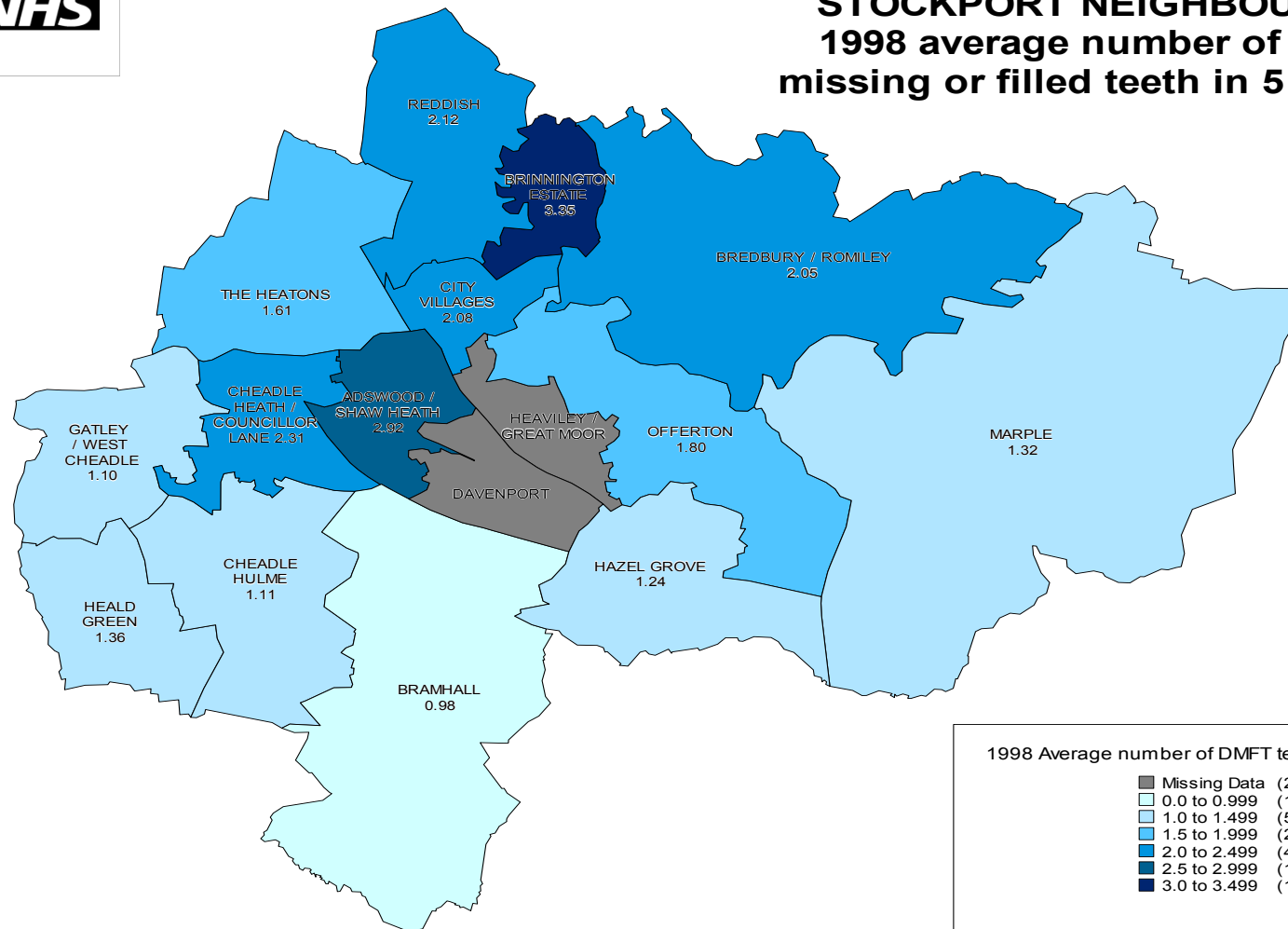
1. Support to families in enabling them to eat healthily (the whole of the diet) and brush with fluoride toothpaste from an early age by providing information, advice, and active interventions appropriate to the people involved.
2. Target public health resources primarily at those most at risk from decay.
3. Provide access to a dentist based on needs and taking into account, where appropriate, wants.
4. Work in a holistic manner to ensure oral health is integrated in health promotion work and is not an add-on or stand alone.
5. Ensure dentists provide prevention using on evidence based approaches to all their child patients.
6. Support Fluoridation the public water supply.

In commissioning and procuring dental services these points will be taken into account. To this end the PCT is:

- Procuring more dental services in areas with the greatest unmet demand.
- Reviewing oral health services to support the public health and GDP approach.

The PCT Board has requested the SHA to carry out further studies regarding Fluoridation of the water supply.

STOCKPORT NEIGHBOURHOODS 1998 average number of decayed, missing or filled teeth in 5 year olds.



1998 Average number of DMFT teeth per 5 year old

Missing Data	(2)
0.0 to 0.999	(1)
1.0 to 1.499	(5)
1.5 to 1.999	(2)
2.0 to 2.499	(4)
2.5 to 2.999	(1)
3.0 to 3.499	(1)