Children and Young People's Oral Health

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Summary

Oral health is essential to general health and quality of life. The World Health Organisation (2013) defines oral health as a state of being free from mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing.
http://www.who.int/mediacentre/factsheets/fs318/en/

As well as pain or infection, poor oral health is associated with low weight and failure to thrive in infancy. Poor dental hygiene may continue into adulthood when periodontal disease is associated with heart disease, improved oral health is capable of reversing this effect. Poor oral health during pregnancy is associated with premature birth. Evidence also clearly suggests that poor hygiene habits, along with high levels of deprivation, and cultural background all play a part in effecting the quality of a child's oral health with millions of pounds spent annually on dental treatment in the UK.

Surveys of the teeth of children in Nottingham City and Nottinghamshire County & Bassetlaw, demonstrate a wide variation in the level of oral health. The NHS Dental Epidemiology Programme for England co-ordinates surveys of the dental health of school children across all local authority areas. In 2007/08, 5-year-old children in Nottinghamshire & Bassetlaw were estimated to have an average of 0.81 decayed missing or filled teeth (dmft) compared with a national average of 1.11. When a breakdown of districts was looked at, results showed a clear difference between areas of higher social deprivation, lower social deprivation and water fluoridated areas. Dmft levels were better in areas of lower social deprivation and where water supplies are fluoridated. An update of the national survey is underway.

Full JSNA report

What do we know?

1. Who is at risk and why?

The population as a whole is at risk of developing poor oral health. Despite this, the main causes of poor oral health in children and young people are socio-economic deprivation, limited access to services and being from culturally diverse backgrounds.

Oral health is important to general health and wellbeing as poor oral and dental health can affect someone's ability to eat, speak and socialise normally (DH 2011: Department of Health (2011) Dental quality and outcomes framework. London: Department of Health). Tooth decay is a common condition in children and is largely preventable (Levine and Stillman-Lowe 2009 The scientific basis of oral health education: 6th edition. London: British Dental Journal).

Poor oral health can cause enamel erosion leading to tooth decay (dental caries), gum disease and bad breath. Dental caries are caused by a build up of bacteria in the mouth from sugars contained in the food that is consumed throughout the day. This build up of bacteria is known as plaque, which produces acid, that causes dental caries and enamel erosion. Particularly amongst children, high consumption rates of acidic foods such as carbonated soft drinks and fruit juices can lead to enamel erosion. Poor oral health is also associated with failure to thrive in young children.

Dental trauma has a negative impact, socially, on a young person as well as health implications, affecting both a child's confidence and self-esteem alongside experiencing pain (and the mental and emotional distress associated with this), and sleep loss due to discomfort. This can have a secondary effect on educational attainment due to associated absence.

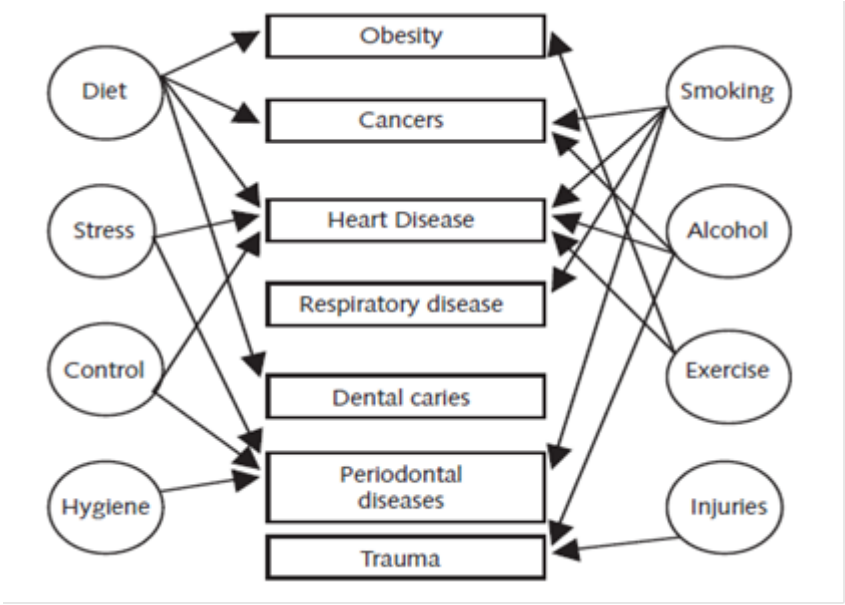
Key risk factors for severe dental caries in children and young people *(Rayner et al 2003), (Oral Health Strategy, 2011-2015)*

These risk factors include:

- Residing in a deprived area
- Being from a lower socioeconomic group
- Belong to a Asian family (particularly where language barriers are an issue)
- Children under 5
- Children and young people who are looked after by foster carers, or who are given support to live independently in the community
- Children and young people from gypsy and traveller communities where location of residence is frequently changed
- Poor diet and reducing sugar intake and frequency of consumption
- Children are engaged in activity which involves a higher risk of injury or trauma. i.e. the active participation in contact sports
- Stress
- Poor oral hygiene practice particularly from an early age
- Incorrect or inappropriate feeding practices from an early age

These risk factors must be considered when targeting promotional work.

The diagram below further illustrates how these risk factors are associated with common oral health and general health *(Sheiham & Watt 2000).*



Pre-natal dental care

Good oral health practice should start from an early age, so, by ensuring mothers receive access to prenatal dental care during their pregnancy and through to the age when their child is one year old, good oral hygiene and practice can be established. All mothers are offered the NHS maternity exemption certificate, enabling them to access free dental care for this time period. They are also given information in their maternity pack specific to good oral health practice along with a free sample of the Nottinghamshire County oral health promotion branded fluoride toothpaste and toothbrush. The pack also contains information regarding water fluoridation schemes.

Ethnicity

Children and young people from an Asian (and predominantly Pakistani) background have proven higher rates of dmft and oral sepsis, rates of which are also evident amongst those children residing with families from an inner city home in comparison to the county. The increased risk and rates are linked to the following factors:

- Where one or both parents' first language is not English and language barriers exist
- Ingredients within oral health products are often questioned to be suitable for halal/vegetarian diets
- Traditional products and practices are chosen over fluoride containing brands
- Levels of education and deprivation are linked to low levels of health awareness regarding good oral health hygiene practice

Learning Disability Needs

Data illustrates that children with special needs are at a higher risk and have higher rates of dental caries and oral sepsis. This can result from failing to access services as frequently as recommended, difficulties around maintaining the correct hygiene practices and the need for additional support within dental practices to carry out certain procedures *(Department of Health. An Oral Health Strategy for England. London: DH; 1994)*

2. The size of the issue locally

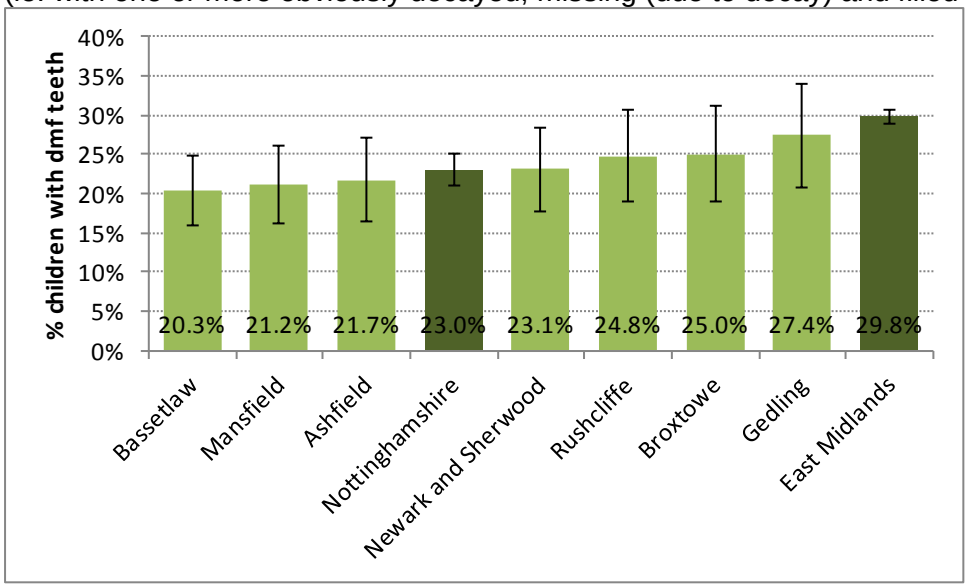
Children's oral health is usually measured through dental caries (decay) rates - dmft, (decayed, missing & filled deciduous (baby) teeth). This data is collected through the regular dental epidemiological surveys of 5 year-olds and 12 year-olds. The last 5 year-old survey was in 2011/12 and the 12 year-old in 2008/09.

Amendments to the survey, specific to the consent process, means that despite an overall level of improvement in the rates of dental caries, direct comparisons cannot be made between survey results due to such changes.

Dental caries are used as a measure to determine the level of children's oral health; whilst an important indicator of the level of active advanced disease caused by dental decay is sepsis, i.e. active infection *(Local Authority dental health improvement Strategies draft scope for consultation. 29th Oct-26th Nov 2012).* The presence of sepsis may result from failing to seek care and the percentage of sepsis is used to guide the need for a child to undergo urgent care.

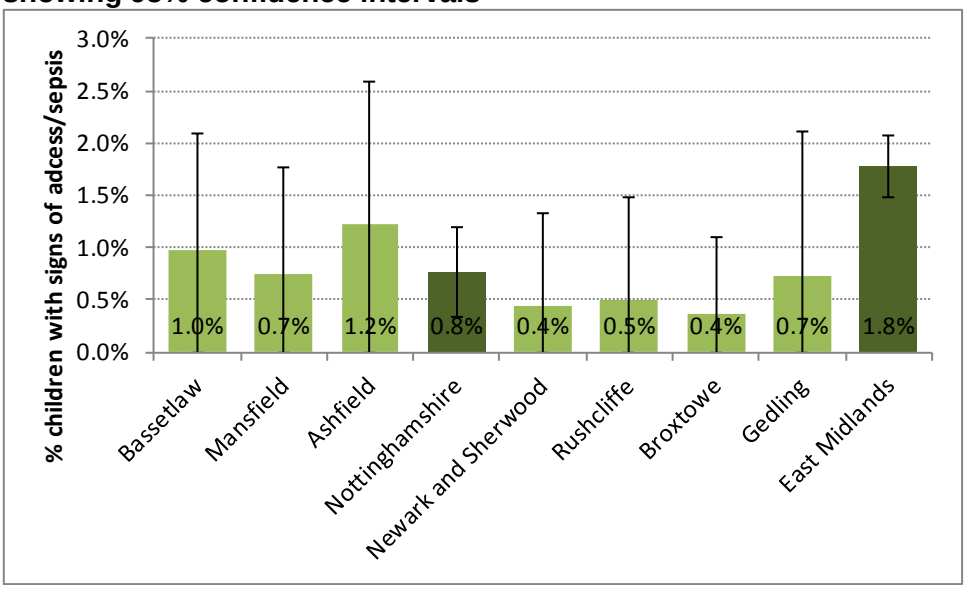
2.1. Children aged 5 years

Figure 1: Percentage of 5 year old children with decay experience in 2011/12, showing 95% confidence intervals
(ie: with one or more obviously decayed, missing (due to decay) and filled teeth)



Source: Dental Health Survey 2011/12

Figure 2. Percentage of 5 year-olds showing signs of oral sepsis in 2011/12, showing 95% confidence intervals



Source: Dental Health Survey 2011/12

Figures 1 shows that the percentage of 5 year old children with decayed, missing or filled teeth was significantly lower in Nottinghamshire compared with the East Midlands, and is lowest in Broxtowe, Mansfield and Ashfield districts. Levels of sepsis (infection) across Nottinghamshire was lower In Nottinghamshire was significantly lower compared with the East Midlands. District level comparisons are difficult to interpret due to small numbers and therefore wide confidence intervals.

The above figures clearly highlight the communities and boroughs experiencing the highest incidence of dmft, therefore requiring increased appropriate support and access to dental services, as well as interventions to improve dmft rates and progression to oral sepsis.

Although the level of caries in children aged 5 has been monitored over several years, it is not possible to make an accurate comparison between the last two survey results due to changes in the methodology, particularly consent, and the health organisation boundaries. The data can be reviewed independently for each survey. The 2012 survey results show a distinct difference in the rates of dmft levels between areas of low socio-economically deprived backgrounds and high socio-economic backgrounds. There is also a direct link to levels of water fluoridated areas and the rates of dmft; where water fluoridation is high, the level of dmft is low (Figures 2 and 3).

Figure 3: Weighted mean number of decayed missing and filled baby (First) teeth (dmft) per child, 5 year-olds 2007-08

District/Borough	Dt (decayed teeth)	Mt (missing teeth)	Ft (filled teeth)	dmft
Rushcliffe	0.30	0.01	0.06	0.37
Bassetlaw	0.28	0.07	0.08	0.43
Nottinghamshire	**0.50**	**0.06**	**0.07**	**0.64**
Broxtowe	0.50	0.10	0.07	0.67
Mansfield	0.55	0.04	0.09	0.68
Ashfield	0.55	0.11	0.05	0.71
Gedling	0.63	0.03	0.09	0.75
East Midlands	**0.77**	**0.06**	**0.09**	**0.92**
Newark and Sherwood	0.82	0.08	0.05	0.95

Source: Dental Epidemiology Survey, 2011/12

Figure 4: Comparison of mean number of dmft per child for 5 year-olds between 2005 and 2012 (see note above)

District/Borough	dmft - 2005	dmft - 2007	Dmft – 2012
Ashfield	0.98	0.39	0.71
Bassetlaw	0.83	0.42	0.43
Broxtowe	0.91	1.12	0.67
Gedling	1.33	1.23	0.75
Mansfield	0.77	0.34	0.68
Newark & Sherwood	1.12	0.64	0.95
Rushcliffe	0.66	0.55	0.37
Nottinghamshire	**0.95**	**0.81**	**0.64**

Source: Dental Epidemiology Survey

2.2. Children aged 12

Figure 5 below shows the results of the 2008-2009 survey of children aged 12. Nottinghamshire County as a whole falls just under the weighted mean D3MFT, scores for the East Midlands and England.

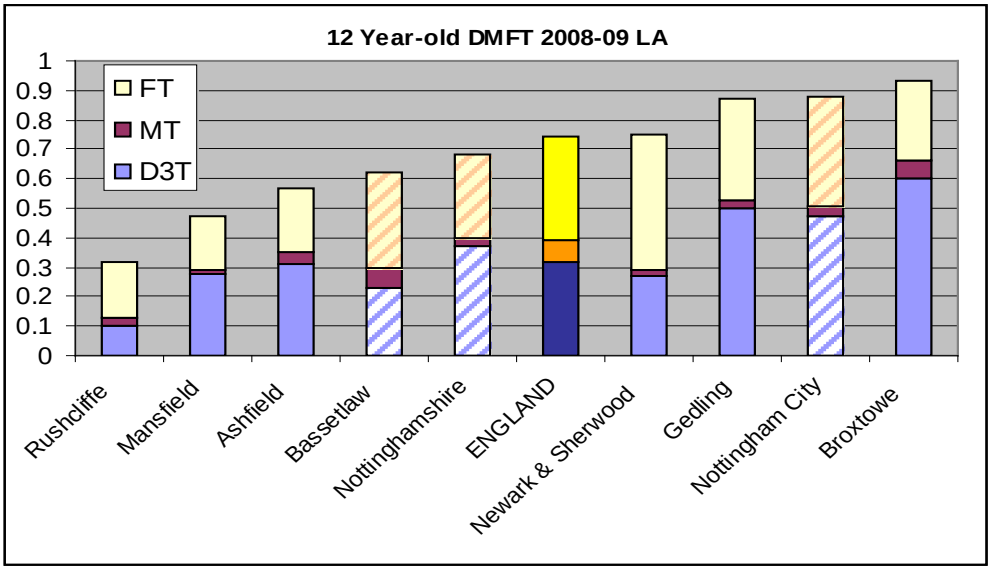
Figure 5: Weighted mean D_3MFT scores 12 year-olds 2008-09 in ascending order.

District/Borough	Mean D_3MFT (Weighted)	D_3T	MT	FT
Rushcliffe	0.33	0.10	0.03	0.19
Mansfield	0.47	0.28	0.01	0.18
Ashfield	0.57	0.31	0.04	0.22
Bassetlaw	0.62	0.23	0.07	0.32
Newark & Sherwood	0.75	0.27	0.02	0.46
Gedling	0.87	0.50	0.03	0.34
Broxtowe	0.93	0.60	0.06	0.27
Nottinghamshire	**0.69**	**0.37**	**0.03**	**0.28**
EAST MIDLANDS	***0.74***	***0.33***	***0.05***	***0.35***
ENGLAND	***0.74***	***0.32***	***0.07***	***0.35***

Source: Dental Epidemiology Survey

Key:
D_3T: ***Average number of obviously decayed teeth per child.***
MT: ***Average number of missing (due to decay) teeth per child***
FT: ***Average number of filled teeth per child.***

Figure 6: Weighted mean D_3MFT scores in ascending order 12 year-olds 2008-09



Source: Dental Epidemiology Survey

Despite not illustrating a comparison between the surveys, figure 7 does show epidemiological trends, indicating that Rushcliffe Borough experiences the lowest levels of mean D3MFT scores, in comparison to North Nottinghamshire and Broxtowe which experience the highest.

Figure 7: Weighted mean D_3MFT scores 2000/01 and 2004/05

PCT	12 year-olds 2000/01	11 year-olds 2004/05
North Nottinghamshire (Bassetlaw, Mansfield, Ashfield minus Hucknall, Newark & Sherwood)	**0.79**	
South Nottingham (Broxtowe & Hucknall, Gedling, Nottingham City, Rushcliffe)	**0.95**	
Bassetlaw		**0.37**
Ashfield		**0.56**
Mansfield		**0.53**
Newark & Sherwood		**0.63**
Broxtowe & Hucknall		**0.70**
Gedling		**0.59**
Rushcliffe		**0.45**

Source: Dental Epidemiology Survey

There is a considerable difference in the rates of caries across Nottinghamshire between children aged 5 and children aged 12. Bassetlaw provides a good example of this (Figure 8 below) illustrating that just less than a fifth of 5 year-olds in 2012 and almost a third of 12 year-olds have experienced dental decay in either their first or second teeth.

2.3. Impact on Health and Wellbeing

The maintenance of good oral health is important for all members of the local population. Poor oral health has an impact on social and economic wellbeing as well as on health. Dental caries (decay) can result in pain and loss of teeth with high cost restorative care including crown and bridgework and implants which not only have an impact on the health the young person, but also have an aesthetic social impact amongst peers. Erupted teeth may also be subject to dental erosion, usually from over-consumption of acidic drinks, hence much of the local targeted promotion work occurring around the awareness of health promotion and healthy eating messages. Poor oral health may be associated with low weight and failure to thrive in very young children.

3. Trends and projections.

Although the most predominant oral health disease amongst children and young people is dental caries, increased levels of fluoridation (where fluoride is actively added) in water supplies and the increase use of fluoride toothpaste has seen a sharp decrease in the rates of disease over the last 40 years. The latest measures of decay suggest that the proportion of children with caries is declining, which Figure 8 demonstrates, particularly for children aged 5. Areas that are less affluent have experienced a reduction in the rate of caries for the population as whole, not just children, due to the introduction of fluoridation in water supplies.

Figure 8: % of 5 and 12 year-old Children with dental caries experience i.e. dmft>0 in 5 year-olds and DMFT>0 in 12 year-olds

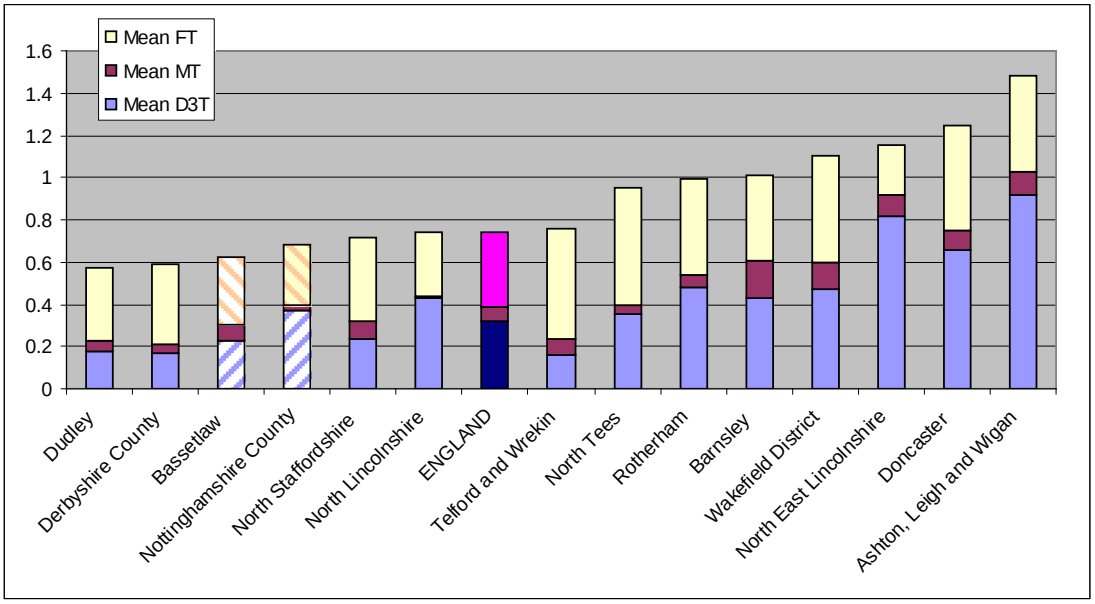
	% 5 year-olds			%12 year-olds
	2006	**2008**	**2012**	**2009**
Bassetlaw	27.0	23.3	20.3	31.6
Ashfield		21.9	21.7	27.7
Broxtowe		26.2	25.0	40.1
Gedling		39.9	27.4	34.5
Mansfield		17.3	21.2	25.3
Newark & Sherwood		25.8	23.1	30.9
Rushcliffe		27.7	24.8	18.9
Notts County	29.4	25.9	23.0	30.5
East Midlands		***30.8***	***29.8***	***33.2***
England		***30.9***	***27.9***	***33.4***

Source: Oral Health Strategy, 2011-2015

4. How we compare with other areas.

The impact of fluoridation can be seen when areas similar to Nottinghamshire are compared (ONS cluster areas); those with fluoridated water experience the lowest levels of caries (figure 9).

Figure 9: Nottinghamshire County and Bassetlaw ONS Cluster: 12 year-old 2008-09



Source: Oral Health Strategy, 2011-2015

5. Targets and Performance

Both the Public Health (PHOF) and NHS Outcomes Frameworks include indicators specific to oral health.

The Public Health Outcomes Framework includes:

Domain 4: Healthcare public health and preventing premature mortality

- Tooth decay in children aged 5

This indicator is based on the mean number of teeth per child sampled which were either actively decayed or had been filled or extracted – decayed/missing/filled teeth (dmft). Base line data (2011/12) for this indicator has yet to be published.
The NHS Outcomes Framework has:

Domain 4: Ensuring that people have a positive experience of care

- Patient experience of primary care (iii) NHS Dental Services
- Improving access to primary care services (NHS dental services)

6. National and local strategies

National strategies and policies related to oral health include:

- Choosing Better Oral Health: An oral health plan for England (DH 2009) which replaced An oral health strategy for England (1994)
- Delivering Better Oral Health: An evidence based toolkit for prevention (DH 2009)
- Dental quality and outcomes framework (DH 2011)
- Healthy lives, healthy people: our strategy for public health in England (DH 2010a)
- Improving oral health and dental outcomes: developing the dental public health workforce in England (DH 2010)
- Valuing people's oral health. A good practice guide for improving the oral health of disabled children and adults (DH 2007).

Locally the Nottinghamshire Oral Health Strategy 2011-15 sets out the Oral Health Needs Assessment and a strategy to further develop and shape oral health and services within the County.

7. Current activity and service provision

Children and young people are currently offered the following services:

- Free access to NHS dental care up to the age of 18, or 19 if in full time education
- Health visitors promote oral health messages given up to school entrance, then by school nursing in schools at school entry and throughout school life.
- Free access to oral health resources in Nottinghamshire County children's centres
- Specific resources for special care children
- Information for adolescents and young adults on diet (including smoking), oral hygiene and dental attendance and the impact of these on oral health
- Information around the water fluoridation schemes

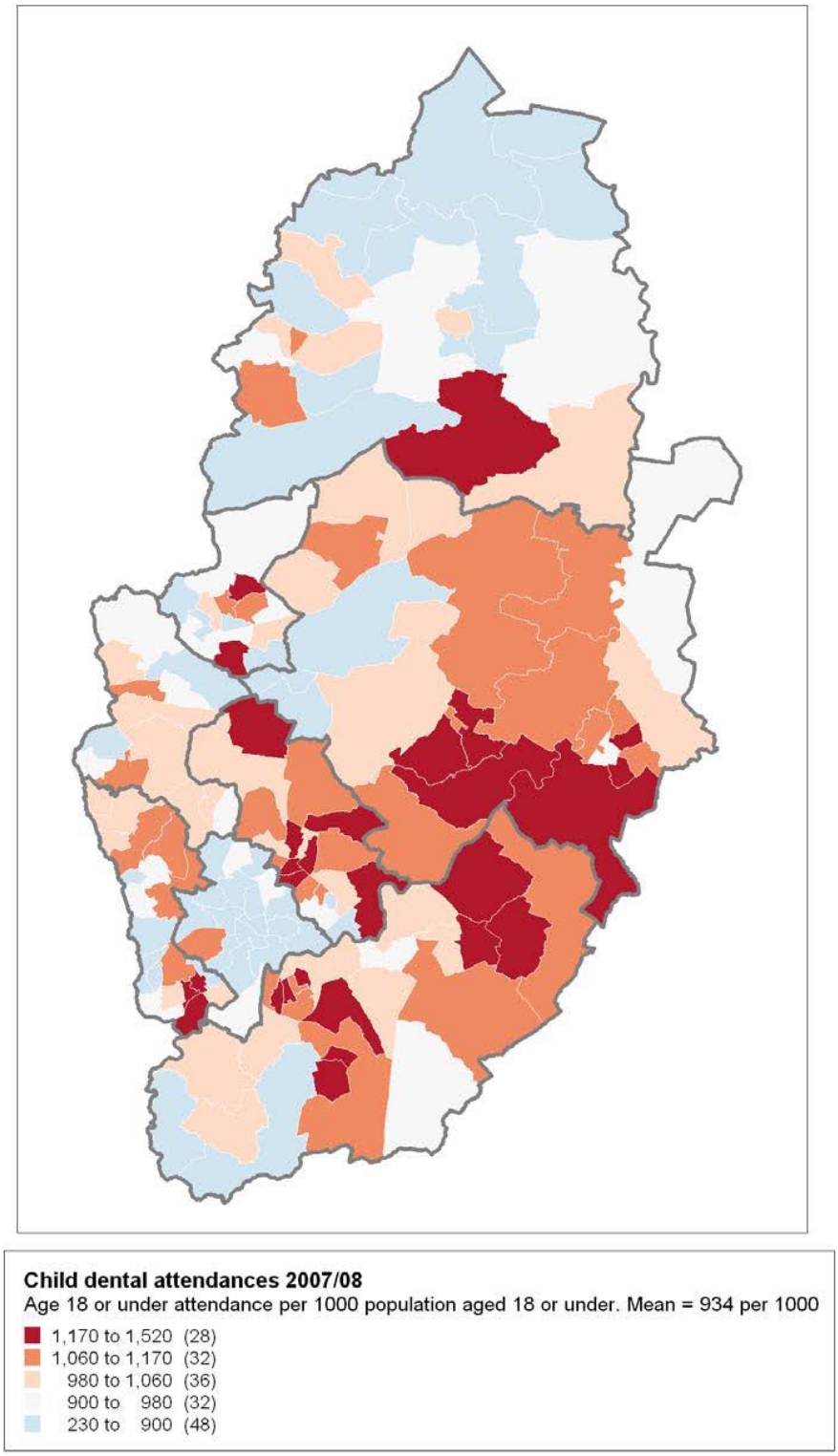
The NHS Dental Epidemiology Programme for England co-ordinates surveys of the dental health of school children across all local authority areas. An update of the national survey is underway and is due in 2013. The survey data collected allows for comparisons between age ranges to be made in the rates of oral sepsis and general oral health.

The NHS Business Services Authority monitors data regarding the level of attendance for NHS dentistry for all children up to the age of 18 years. The data monitored shows the numbers of children who received at least one course of treatment, or have accessed NHS dental treatment during 2007-08. The treatment is not necessarily a routine check as it also includes any urgent treatment or orthodontic care, or a combination of all three types of care. Further analysis is required on the composition of the course of treatment, and the development of better data sets within the new dental contract will allow this for subsequent years.

For Nottinghamshire County, the level of attendance at an NHS dentist is good with particularly high levels of attendance at practices in the Newark & Sherwood area. Areas where attendance is lower include Rushcliffe and Bassetlaw; however there are also a considerable number of private dental practices across the county which impacts on the data. Currently there is no relevant data on private dentistry and therefore a comparison cannot be made.

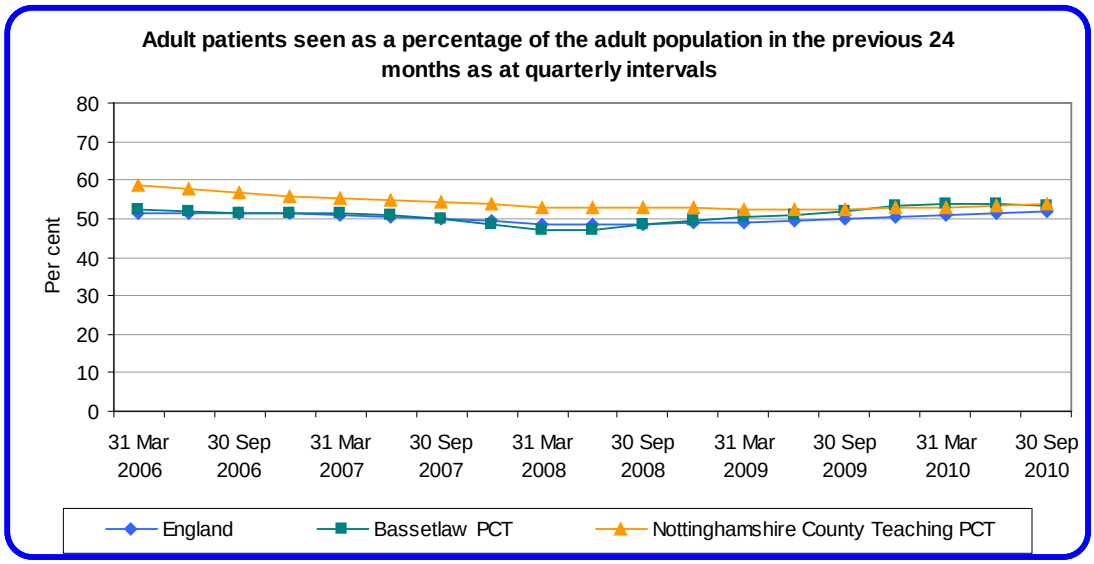
Levels of dental practice attendance vary between children and adults, as indicated in figures 10, 11 and 12. It cannot be exactly determined as to the reason why attendance amongst children and young people is higher than adults, however it can be linked to the range of accessible services offered to this group, the most significant being access to free dental care up to the age of 19 if the child is in full time education.

Figure 10: Child dental attendances 2007-08



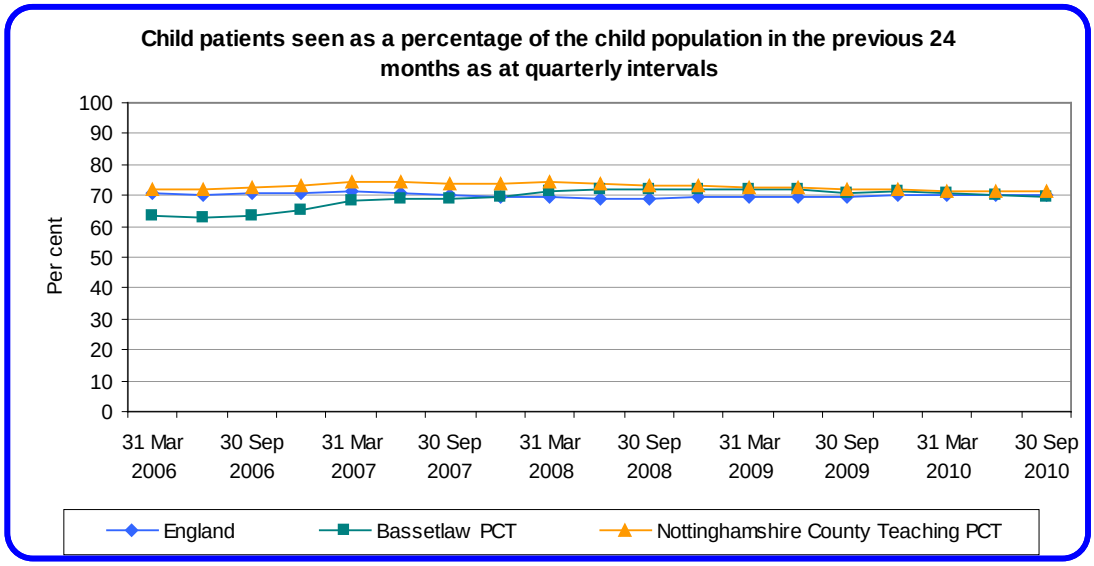
Source: NHS Business Services Authority – Dental Services 2009

Figure 11: Adult % Population of PCTs seen as NHS Dental Patients Trend



Source: NHS - The Information Centre 2010

Figure 12: Child % Population of PCTs seen as NHS Dental Patients Trend (NHS- The Information Centre 2010)



Source: NHS - The Information Centre 2010

Special Care Dentistry

Salaried dental services in primary and secondary care settings provide the treatment services of special care dentistry. Figure 13 illustrates the breakdown between adults and children for special dental care patients seen at Nottingham University Hospitals between April and December 2009. The large numbers of patients seen are children with Figure 14

illustrating further breakdown of age brackets; children aged between 6 and 12 access special care more than others.

Figure 13: Special Dental Care Patients seen in NUH April – December 2009

	Nottinghamshire County
Day case – Adults	22
Day case – Child	46
Exodontia – Child	177
Assessments	57
In-patients	8

Source: NHS Business Services Authority – Dental Services

Figure 14: Special Care Patients seen by Nottingham Salaried Dental Services 2009-10 (NHSBSA)

Age	Number	%
0-2	98	2.97
3-5	504	15.27
6-12	1,302	39.44
13-17	451	13.66
18-24	112	3.39
25-34	123	3.73
35-44	184	5.57
45-54	194	5.88
55-64	108	3.27
65-74	71	2.15
75+	154	4.67
Total	**4,242**	**100.00**

Source: NHS Business Services Authority – Dental Services

Orthodontics

Orthodontic services and treatments are offered on a case selection and review basis for either adults or children who have developmental defects of the teeth and jaws. For an effective treatment and service, appropriate referrals must be made at the most crucial stage of development. Treatments also require the patients to fully understand and cooperate with procedures, including maintaining higher levels of oral hygiene. In Nottinghamshire, excluding Bassetlaw, a care pathway using a standardised referral form has been used since May 2009 that has resulted in eliminating inappropriate referrals to secondary care *(Oral Health Strategy, 2011-2015), (Local Authority dental health improvement Strategies draft scope for consultation. 29th Oct-26th Nov2012).* Bassetlaw's access to orthodontic services is underdeveloped, and a low level of provision within the district exists, often resulting in referrals for routine cases made to outside of the district, usually to neighbouring Doncaster.

The service provision in Nottinghamshire currently includes the following on a general and orthodontic NHS contract:

- Two specific orthodontic practices in Mansfield and West Bridgford
- One orthodontic contract
- Four combined Orthodontic and General contracts
- Six practices with both a General and an Orthodontic contract.

The epidemiological survey of children aged 12 is used to determine the estimate of the level of service required. The results of the 2008-09 survey indicated that 340 children in Bassetlaw and 1,332 children in NHS Nottinghamshire County required orthodontic care. Taking into account oral hygiene and compliance, services should be prepared to receive about 70% of these numbers i.e. 240 in Bassetlaw and 930 in NHS Nottinghamshire County *(Oral Health Strategy, 2011-2015), (An Oral Health Strategy for England. London: DH; 1994)*

The key areas of improvement identified for Orthodontics include:

- The need to ensure the level of orthodontic treatment requirements are being met and will continue to do so with increasing populations
- The need to maintain appropriate level and demand of services
- The need to review the provision in Bassetlaw in order to meet the population's orthodontic needs

Oral Health Promotion

Nottinghamshire County Council Public Health commissions a Specialist Oral Health Promotion Service that provides a comprehensive range of Oral Health promotion services and interventions to people within Bassetlaw, Nottinghamshire County and Nottingham City. The service has undergone a commissioner's review with a view to re-evaluate the current contract and the future of the service.

Oral health promotion is a key part of ensuring that risk factors that influence poor oral health outcomes are addressed. However, in order for oral health promotion messages to be really effective, all health and children's services including dental practices should be responsible for actively promoting key messages.

Although oral health promotion messages may a direct positive impact on the overall oral health of an individual, such promotion may not reduce the levels of health inequalities, as the distribution of oral diseases can remain static. For example, some measures including water fluoridation in parts of Nottinghamshire have a positive effect on reducing the overall levels of dental caries, but have little impact on reducing inequalities *(Oral Health Strategy, 2011-2015), (Kay E, Locker D. A Systematic Review of Health Promotion aimed at Improving Oral Health.1998).*

Key interventions and services which are aimed at directly encouraging better oral health and hygiene amongst children and young people include:

i. Incredible Mouths

'Incredible Mouths' is an oral health promotion initiative in which was developed in 2009 to be delivered across Nottinghamshire County by the oral health promotion team. The aim of the initiative is to promote key messages, and therefore increase awareness and encourage improvements in dental health practice. The initiative must target vulnerable communities and contribute to the reduction of overall levels of disease, particularly dental caries,

periodontal disease and oral cancer *(Oral Health Strategy, Nottinghamshire County, 2011-15).*

The initiative covers all sections of the community and consists of several programmes, including:

	Area of Work	**Progamme**
a)	Oral Health Messages	1. Midwives 2. Health visitors 3. Children's centres 4. School nursing 5. Healthy Mouths a. Special schools b. Residential Homes
b)	Dental Impact	6. GDP Accreditation 7. Oral Health Network
c)	Community Development	8. Sure Start 9. Early years 10. GPs 11. Pharmacies 12. Schools – Secondary & Primary

ii Oral Health Promotion Teeth Tools for Schools Programme

The Oral Health Promotion Team has developed and piloted a new tiered academic resource in primary schools called the Teeth Tools for Schools programme. To date just over 270 schools in Nottinghamshire county and Bassetlaw have their very own copy of the 'Teeth Tools for Schools' pack with many having pledged to deliver and evaluate oral health sessions. The programme is being further expanded due to its success and an evaluation of the outcomes has already begun which is due to be complete by December 2013. Further information regarding this initiative can be found at http://www.nottinghamshirehealthcare.nhs.uk/aboutus/latest-news/teeth-tools-for-schools/.

iii Accreditation scheme for dental practices

The team also offers dental practices training and membership working towards a general dental accreditation. This is actively promoted by the oral health team with several practices in Bassetlaw already holding the accreditation.

iv Partnership Working

The Oral Health Team also works in partnership with general health promotion services, dental practitioners and other health care professionals to ensure consistent oral health messages and activities with the maximum impact.

Public Health Promotion

i Water Fluoridation

Public health for Nottinghamshire County currently fund the fluoridation programme delivered in select areas in the County. The fluoridation of water has been directly linked with the effective reduction of dental caries amongst the whole population, demonstrated by the increased levels of dmft in areas where water fluoridation has not happened.

ii Public Health Dental Epidemiological Survey

Each year the Public Health team support the salaried dental team who are commissioned by NHS England to deliver a survey to various age categories for children and young people in the County and City. The outcomes from this survey not only then go on to inform commissioning decisions but also provide a focus for the oral health team to deliver effective targeted interventions.

8. Evidence of what works

Delivering Better Oral Health (DH 2009) provides an evidence base of interventions to improve oral health, and the tables below illustrate the advice expected to be given in relation to the prevention of dental caries, alongside the strength of evidence (EB):

The grades of evidence given are as follows: Grade	Strength of evidence (EB)
I	Strong evidence from at least one systematic review of multiple, well-designed, randomised control trial/s.
II	Strong evidence from at least one properly designed, randomised control trial of appropriate size.
III	Evidence from well-designed trials without randomisation, single group studied pre and post intervention, cohort, time series of matched, case-control studies.
IV	Evidence from well-designed, non-experimental studies from more than one centre or research group.
V	Opinions of respected authorities, based on clinical evidence, descriptive studies or reports of expert committees.

Table 11: Prevention of caries in children aged 0-6

	Advice to be given	EB	Professional intervention	EB
Children aged up to 3 years	Breast feeding provides the best nutrition for babies	I		
	From six months of age infants should be introduced to drinking from a cup, and from age one feeding from a bottle should be discouraged	III		
	Sugar should not be added to weaning foods	V		
	Parents should brush or supervise tooth brushing	V		
	Use only a smear of toothpaste containing no less than 1,000ppm fluoride	I		
	As soon as teeth erupt in the mouth brush them twice daily	IV		
	The frequency and amount of sugary food and drinks should be reduced and, when consumed, limited to mealtimes. Sugars should not be consumed more than four times a day	III		
	Sugar-free medicines should be recommended	III		
All children aged 3 – 6 years	Brush last thing at night and on one other occasion	I	Apply fluoride varnish to teeth twice yearly (2.2% F^-)	I
	Brushing should be supervised by an adult	V		
	Use a pea size amount of toothpaste containing 1,350 -1,500 ppm fluoride	V,I		
	Spit out after brushing and do not rinse	IV		
	The frequency and amount of sugary food and drinks should be reduced and, when consumed, limited to mealtimes. Sugars should not be consumed more than four times per day	III		
	Sugar free medicines should be recommended	III		
Children giving concern (e.g. those likely to develop caries, those with special needs)	All advice above, plus: • Use a smear or pea-sized amount of toothpaste containing 1,350-1,500 ppm fluoride • Ensure medication is sugar free • Give dietary supplements containing sugar and glucose polymers at mealtimes where possible (unless clinically directed otherwise) and not last thing at night. Parents should be made aware of the carcinogenicity of supplements and ways of minimising risk.	I I V	• Apply fluoride varnish to teeth 3-4 times yearly (2.2% F^-) • Prescribe fluoride supplement and advise re maximising benefit • Reduce recall interval • Investigate diet and assist to adopt good dietary practice • Ensure medication is sugar free or given to minimise cariogenic effect	I II V III III

Table 12: Prevention of caries in children aged from 7 years and young adults

	Advice to be given	**EB**	**Professional intervention**	**EB**
All children and young adults	Brush twice daily	I	Apply fluoride varnish to teeth twice yearly (2.2% F^-)	I
	Brush last thing at night and on one other occasion	V		
	Use fluoridated toothpaste (1,350 ppm fluoride or above)	I		
	Spit out after brushing and do not rinse	IV		
	The frequency and amount of sugary food and drink should be reduced and, when consumed, limited to mealtimes. Sugars should not be consumed more than four times per day	III		
Those giving concern (e.g. those likely to develop caries, those undergoing orthodontic treatment, those with special needs)	All the above plus: • Use a fluoride mouth rinse daily (0.05% NaF) at a different time to brushing	I	Fissure seal permanent molars with resin sealant	I
			Apply fluoride varnish to teeth 3-4 times yearly (2.2% F^-)	I
			For those 8+ years with active caries prescribe a fluoride rinse	I
			For those 10+ years with active caries prescribe 2,800 ppm toothpaste	I
			For those 16+ years with active disease consider prescription of 5,000 ppm toothpaste	I
			Investigate diet and assist adoption of good dietary practice	III

The National Institute for Health and Care Excellence (NICE) is currently developing guidance for local authorities on oral health needs assessments and community oral health promotion programmes, particularly targeted at vulnerable groups at risk of poor oral health. This will consider the most effective (and cost effective) programmes and interventions to promote, improve and maintain the oral health of a local community.

In addition NICE are to produce two other papers with guidance on oral health:

- Guidance for dental health practitioners on effective approaches to promoting positive oral health behaviour, including a positive patient experience of attendance at the dentist and reducing any anxiety among 'dental phobics'.
- Guidance for carers working in health and social residential care settings (including nursing homes, residential care homes) on effective approaches to promoting oral health, preventing dental health problems and ensuring access to dental treatment when required.

Other relevant NICE guidance is dental recall (NICE Clinical Guideline 19; 2004) which recommends:

- A recall for adults between three months and two years, based on a risk assessment, taking into account a checklist of risk factors, such as alcohol and tobacco use.
- A recall for children between three and 12 months.
- The actual interval should be a clinical decision by the dentist based on the patient's needs.

9. Local views

To date there has been no formal report produced to summarise the views of local patients, communities or professionals. However, qualitative feedback is continually collated and monitored with respect to local initiatives and programmes for children and young people in the county. All programmes delivered in the county for this target group are children and young people led, ensuring that views, opinions and experiences are reflected back in the local services delivered.

Below are examples of local service user feedback for local initiatives:

Teeth Tools For Schools Year 6 Magazine: quotes from Year 6 students (10/11 year olds)

127 comments were received to date, including:

- "I like the information and facts. I like everything in it - it is great and will make people brush their teeth."
- "It will be better if there was more activities and jokes in the booklet but everything else is fine."
- "I like the colours and the way they give the information."
- "It's good because it's really factual."
- "No changes to be made. It looks fun to read and it has a nice cover and good tips, nothing missing."

Oral Health Workshop for Secondary Students

The initial evaluation was successful as all students were able to state something they had learnt during the sessions.

In order to ascertain whether the knowledge gained during the session is retained and thus may help to change student behaviours, evaluation forms were circulated to both students and teacher. The evaluation forms were returned post session (1 teacher, 88 pupils). The response to 'What do you do after brushing your teeth?' question post session saw an increase of 30% (40% up to 70%) giving the correct answer of 'spit, don't rinse'.

The teaching staff found the sessions fun and felt both they and their students learnt something new about oral health. Of all the topics covered, the teacher felt the students would be most likely to change the following behaviours; 'spit, don't rinse' and limiting sugars to mealtimes only.

What does this tell us?

10. What are the key inequalities?

No Equality Impact Assessments (EIA) have taken place, however below is a list of known issues relating to inequalities:

- Not all areas of the county have water supplies that are fluoridated due to agreements not having been implemented. Fluoridated water supplies exist in areas of high rates of tooth decay and socio economic deprivation
- There are key inequalities amongst target groups as outlined on section 1, Facts and Figures. Some of these issues include limited access to services, lack of awareness, cultural barriers.
- There are also high inequalities amongst those communities from more deprived areas as outlined under the heading 'impact of wider determinant'. Data clearly shows a trend for those living in more deprived areas and the higher rates for dental caries and low rates for access to dental services

11. Where are the gaps in service?

Given the Public Health Outcome Frameworks (PHOF) indicator around dental decay in children aged 5, there needs to be more emphasis on working with pre-school age children in Early Years settings to ensure that oral health promotion is embedded at an early stage in life. Current provision includes the provision and distribution of oral health promotion packs by midwives, health visitors and to school age children.

Emphasis is required to address inequalities in oral health to achieve sustainable long term improvements. Therefore the most vulnerable populations must be targeted, including those with disabilities, looked after children and those originating from certain ethnic minority groups. The results from this year's dental epidemiology study with children aged three, alongside the results from the previous study of children aged five should allow to identify further the groups and geographical areas of the county where targeted interventions are required.

There is a need to continue to robustly evaluate the oral health promotion service to ensure that interventions are effective and support the PHOF indicator. There is also a need to increase partnership working to deliver joint working, such as working more closely with Healthy Schools and Community Nutrition teams, School Nursing and children's centres.

Although there is a vast amount of data collected on local views, there is currently no evaluative evidence as to the longer term impact of the initiatives delivered by the oral health promotion service on oral health outcomes. To ensure that the appropriate services are being commissioned and reaching the right people, evaluation needs to be central to the work being done.

12. Where are the gaps in knowledge?

There are gaps around the regularity of data available and published for both adults and children and young people. This impacts on the ability to influence service improvements.

In addition, currently, no routine data is available regarding levels of dental erosion or levels of trauma experienced by children.

13. What are the risks of not delivering?

- Currently Nottinghamshire County's dmft rates are below the England average. However, these rates of oral sepsis could increase if interventions were not delivered. In addition to this there are wide differences between the boroughs due to the variations in social deprivation and water fluoridation; such inequalities would likely increase if interventions were not maintained. .
- If oral health rates worsened, increased resources would be required to reduce inequalities and poor oral health outcomes for children and young people. This would in turn increase the financial burden on both Nottinghamshire County Council and the wider NHS and central government, with respect to providing health interventions, and responding to the increased demand on primary and possibly secondary care.
- Trends in improvements on the rates of DMFT levels and oral sepsis are being made and this growth is improving over a relatively short period of time. The continued delivery of current services is vital to ensuring this direction of change is maintained.

14. What is on the horizon?

National or local drivers for oral health that need to be considered include:

- The NICE guidance
- Local service review for the oral health promotion service delivered jointly by Nottingham City and Nottinghamshire County
- Plans for a joint service specification going forward between Nottingham City and Nottinghamshire County for the oral health promotion service to ensure a more targeted approach.

What should we be doing next?

In order to attain the desired outcomes, there is a need to:

- improve or maintain good oral health and hygiene practice amongst children and young people
- increase and improve access to dental health services
- reduce the incidence of dental caries and periodontal disease
- influence modifiable risk factors, including the use of fluoride supplements, oral hygiene, practices and frequency of dental visits
- develop and implement strategies and approaches that can lead to improved oral health outcomes for children and young people, particularly in the Early Years
- assess the levels of fluoridation on an area basis and consider areas with high levels of caries for the introduction of an expansion of fluoridation schemes, such as Broxtowe and Gedling

Recommendations

The following recommendations are based on and/or taken directly from the data assessed for the compilation of this chapter, including the joint Nottingham City and Nottinghamshire County and Bassetlaw public health business plan for 2013 onwards and the Nottinghamshire County Oral Health Strategy for Nottinghamshire County and Bassetlaw, 20011 – 2015.

Primary Care Dentistry

- Maintain NHS capacity in Nottinghamshire including Bassetlaw in line with agreed trajectories with existing and new dental providers.
- Implement NICE guidelines on dental recalls in full across all dental providers with NHS contracts.
- Monitor the development of primary dental care pilots including any for children and young people.
- Monitor the impact of CQC registration and ensure robust quality measures are in place in local dental providers.
- Review capacity for orthodontic services based on needs assessment in the 12 year-old survey, especially in Bassetlaw.

Secondary Care Dentistry

- Develop capacity in Restorative Dentistry to primarily advise primary care dental practices and ensure adherence to referral criteria.
- Maintain capacity in specialist Orthodontics in line with the current Orthodontic Care pathway as well as planning for the projected increase in the child population
- Monitor referrals to other areas especially in relation to agreed care pathways and criteria.

Special Care Dentistry

- Ensure Special Care Dental services are seen as a priority in commissioning dental services, such as orthodontics services for children and young people

- Ensure all Primary Care Dental Practices adopt appropriate behaviour management techniques and there is access to local sedation services for appropriately screened patients.
- Implement a Specialist in Special Care Dentistry across Nottinghamshire to ensure that there is specialist leadership for the care pathway.

Dental Public Health

- Undertake the agreed national dental epidemiological surveys with the need to request the increased frequency of surveys carried out. Also review the frequency, methods of data collection and analysis of the data for the surveys.
- Maintain the current water fluoridation schemes and explore ways to expand the schemes, as appropriate and within the agreed processes and also in line with public health data in improved dmft rates.
- Evaluate the "Incredible Mouths" oral health promotion initiative and measure impact and outcomes for future commissioning purposes
- Ensure dental trauma messages are clearly conveyed and available relating directly to children and young people
- Ensure expert dental public health advice is available to inform both the needs assessment and the development of care pathways for children and young people.

Summary of key actions/measures going forward jointly with Nottingham City, Nottinghamshire County and Bassetlaw for children and young people:

1. Number of brief advice/interventions will be measured given to target groups including children and young people, (measures through activity of midwives, health visitors, school nurses and other trained staff)
2. Roll out of the curriculum based oral health teaching pack, Teeth Tooth for Schools will take place with further evaluation of the resource
3. Dental Practices will be further encouraged to attain the General Dental Practice Accreditation and attend the Oral Health Promotion Network.
4. Further promote the Oral Health Resource centre including children and young people service, messages and resources available
5. Conduct Oral Health Promotion to vulnerable groups for example special schools

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