Children’s Dental Health

Headlines

- Poor oral health has a significant impact on both the individual and wider society including pain, discomfort, time off work or school, self-consciousness and low self-esteem.
- Poor oral health remains a disease of poverty, with those experiencing social inequalities having more dental disease and accessing dental services less frequently.
- The main risk to oral health in children is dental decay.
- The association between dental decay and deprivation, as measured by the IMD 2010, has been demonstrated nationally, and is also evident in local data.
- The main risk factors for dental decay are diet and lack of exposure to fluoride, so poor oral health is largely preventable.
- Overall, the oral health of children in North Lincolnshire is relatively good compared with the national and regional average.
- In 2011/12 just over 20% of 5 year olds had evidence of current or previous dental decay in North Lincolnshire. This compares favourably with 28% nationally and 34% across the Yorkshire and Humber region.
- In 2011/12 the average number of decayed, missing or filled teeth in 5 year old children is 0.6, which is significantly lower than both the national (0.94) and regional average (1.23).
- However, for those children who experience dental decay the average number of decayed, missing or filled teeth is 2.89, which is lower than both the national and regional average.
- The relatively good dental health of children in North Lincolnshire compared with many other parts of the country in part reflects the long term benefit of local water fluoridation on children’s oral health. Currently North Lincolnshire residents living to the east of the river Trent and to the west of Immingham have access to fluoridated domestic water supplies.
- However, the Isle of Axholme and the villages to the east of Barton (i.e. Ferry ward) is not a fluoridated area and relatively low deprivation scores are not mirrored by low dental decay levels. This is because the oral health of children in this area does not benefit from water fluoridation.
- Locally, children are still having dental extractions under general anaesthesia, which for many is a distressing experience and carries associated risks.
- Dental extractions under general anaesthesia remain the most common reason for scheduled hospital admissions amongst school aged children across the country. In North Lincolnshire, between April 2011 and March 2013, they accounted for an average of 259 admissions of under 19s a year in North Lincolnshire, of which more than half were under 9 years of age.
- There is a strong association between hospital admissions of children for dental extractions and deprivation.
North Lincolnshire has one of the lowest levels of NHS dental provision in the country and the lowest per 100,000 population in the region.

Access to NHS provision remains a key local public concern, in spite of efforts by local commissioners to improve levels of service provision in the NHS sector in the last 3-5 years.

Provision of NHS dentists is also lowest in the rural areas of North Lincolnshire.

The improved oral health of children is in spite of lower than average take up of dental health services by children in North Lincolnshire, although uptake is improving year on year.

The lowest uptake relative to the national and regional average is amongst pre and primary school aged children.

Following the transformation of NHS and public health systems within England; from April 2013, local authorities have statutory dental public health responsibilities and NHS England now commissions all NHS dental services.

NHS England as the single commissioner for NHS dental services provides opportunities for improved efficiency and consistency in the commissioning of dental services, greater integration of primary and secondary care services, to provide better quality of care and improved patient outcomes.

Local authorities are now responsible for improving the oral health of communities.

Local authorities are now responsible for the commissioning of oral health improvement programmes and dental surveys. They will be monitored on their progress as part of public health outcomes framework through the measure of the rate of tooth decay in 5 year old children.

Between 2012 and 2020, the projections are for 13% growth in the school aged population of North Lincolnshire, so the demand for children’s dental health services is likely to increase as the child population grows. This is unlikely to be matched by additional investment. However, the national dental contract pilots are testing a prevention-based pathway approach to the delivery of primary care dental services, underpinned by a system of registration, capitation and quality. It is expected that the introduction of the new dental contract will encourage dental practices to adopt more of a preventative approach. In the long term, it likely that this will reduce the costly impact of dental disease in the general population.

**What’s the local picture and how do we compare?**

**Dental Health**

The extent and severity of tooth decay in the primary dentition (milk teeth) is measured using the dmf(t) index (DMFT for adult teeth): decayed and left untreated (dt), missing due to caries (mt) and filled (ft). The total number of teeth affected by tooth decay in an individual is the sum of dt, mt and ft, which is known as the dmf(t) value. Average values for a population can be determined also.

Each child normally has 20 teeth and the dmf(t) value can range from 0 to 20. The dmf(t) value is an historical record of a person’s dental disease and so individual dmf(t) scores cannot be reduced. Reducing the population’s average dmf(t) value comes about by preventing new disease occurring.

The National Dental Epidemiology Programme for England includes an oral health survey of 5-year-old children. Estimates for disease prevalence and severity are reported at national, regional and upper and lower-tier local authority level. This data are the source for the dental indicator (tooth decay in children aged five) included in the Public Health Outcomes Framework.
The dental health of 5 year old children in North Lincolnshire is relatively good compared with the national and regional average. This is monitored by a series of dental surveys which take place in our primary schools. The most recent survey of five year olds, (2011/12) shows that the average (mean) number of decayed missing or filled teeth, (dmft score), per five year old in North Lincolnshire was 0.60, compared with a national average of 0.94 in that year and a regional average of 1.23. Overall the proportion of 5 year olds with evidence of decay was just under 21% in 2011/12 in North Lincolnshire. This compares favourably with Yorkshire & Humber (34%) and England (28%).

In comparison with 2007/08 when the previous survey was conducted there were improvements in oral health regionally and nationally as shown in table 1, however the reduction in North Lincolnshire was not statistically significant.

<table>
<thead>
<tr>
<th></th>
<th>2007/8</th>
<th>2012/13</th>
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</thead>
<tbody>
<tr>
<td>North Lincs</td>
<td>0.62</td>
<td>0.60</td>
</tr>
<tr>
<td>Y&amp;H</td>
<td>1.51</td>
<td>1.23</td>
</tr>
<tr>
<td>England</td>
<td>1.11</td>
<td>0.94</td>
</tr>
</tbody>
</table>

When dental disease is examined only amongst those 5 year olds that have evidence of decay, the mean dmft in North Lincolnshire is 2.89. In other words, those 5 year old children with dental disease have on average just over 2 and a half teeth affected. This is significantly lower than the average disease experience in Yorkshire and the Humber (3.65) and England (3.38).

**Figure 1: Average no of decayed missed or filled teeth amongst 5 year olds, 2011/12 by PCT**

For children of 12 years of age, who were last surveyed in North Lincolnshire in 2008/9, the equivalent mean DMFT score was 0.74, compared with 0.74 nationally and 1.07 regionally, indicating better than average dental health in North Lincolnshire compared with their peers across Yorkshire & Humber. Overall, the proportion of 12 year olds with dental decay in North Lincolnshire was (34%) compared with the Yorkshire and Humber average of 45% and a national average of 33%

The care index is a measure of the proportion of decayed teeth that are filled. Across England as a whole, the majority of teeth in 5 year old children that are affected by decay are not treated, (89% not treated in 2011/12). In North Lincolnshire, the figure was 90%. Amongst 12 year olds with evidence of dental decay, the proportion was 41% compared with 47% nationally.
These average scores represent the overall picture for children’s dental health, and can mask inequalities between social groups. Figure X below shows the percentage of 5 year old children with decay by ward in North Lincolnshire in 2011/12, ranked by deprivation score of each ward. This shows that, on average, children living in the most deprived wards experience higher levels of dental decay, especially in Crosby and Park, Town and Brumby wards. However the relationship is not linear, with children living in Frodingham and Burringham and Gunness wards, having better than average scores, whilst children living in some of North Lincolnshire’s less deprived rural wards, such as Axholme North and Central have higher than expected rates of dental decay. This better than expected oral health experience by children living in more deprived areas of North Lincolnshire reflects the positive impact of water fluoridation. This is in spite of lower than average take up of NHS dental services by children living in these areas.

*Figure 2: Decayed missing and filled teeth index in 5 year olds in North Lincolnshire by ward and average IMD score, 2011/12*

**Current services in relation to need**

From April 2013, NHS England commissions the totality of NHS dental services to meet the needs of North Lincolnshire’s population: primary, community and secondary care including dental hospitals and Out of Hours services. Locally this includes:

- 17 general (high street) dental practices
- A community dental service for adults and children with additional needs, This includes a domiciliary service, conscious sedation and general anaesthetic services
- Specialist minor oral surgery
- Sedation service
- Endodontic (root treatment) specialist service
- Orthodontic services
- Oral and maxillo-facial surgery services

Public Health England (PHE) is the principal provider of dental public health expertise. Consultants in Dental Public Health and their teams are now employed by PHE. One of their main areas of work is...
to support local authorities in delivering in their statutory dental public health responsibilities. Underpinned by partnership working, PHE will offer support and advice to local authorities in delivering their statutory responsibilities effectively and efficiently, with a view to improving and reducing inequalities in oral health and contributing to the wider public health agenda. Local support is provided by the Yorkshire and Humber PHE Centre Dental Public Health team which is formed of 5 consultants accounting for 3.6 WTE posts, two senior dental public health managers (1 WTE) and four speciality registrars. There is a lead consultant for each of the local authorities and local area teams in NHS England and they act as the main point of contact for these organisations.

**NHS Primary Dental Care Services**

NHS England commissions the totality of NHS dental services. This provides opportunities for improved efficiency and consistency in the commissioning of dental services and greater integration of primary and secondary care services, in order to provide better quality of care and improved patient outcomes.

In 2012, there were 57 dentists in North Lincolnshire providing some NHS activity, or 34 per 100,000 population. This compares with 44 per 100,000 nationally, 45 per 100,000 regionally and 43 per 100,000 in neighbouring North East Lincolnshire. In fact, this is the lowest provision per head of population in the Yorkshire and Humber region, and the second lowest of all former PCTs in the country. Nevertheless, there are 8 more dentists providing NHS services in North Lincolnshire than in 2007.

*Figure 3: Number of NHS dentists per 100,000 population 2007-12*

Source: NHS Dental Statistics for England, 2012/13, HSCIC

The map below shows where NHS dental practices are located across North Lincolnshire and illustrates low contracted NHS provision in the rural areas of Barton and other eastern parishes in Ferry ward as well as in North Axholme. It also shows the relative take up of NHS dental care by children within the last 2 years across North Lincolnshire.
Take up of dental services

Take up of primary care dentistry is measured nationally by counting the number of individual patients accessing NHS dental care within a two-year period. In North Lincolnshire, the number of child patients as a percentage of the child population accessing a dentist has increased steadily since the introduction of the new dental contract in 2006, from 61.5% in March 2006, to 65.5% in March 2012.

However in 2013, child take up fell back slightly to 62.6%, putting North Lincolnshire in the lowest fifth of PCTs on this measure. (see figure 6 below). In 2014 take up improved slightly to 64.5%, compared with the national and regional averages, of 71% and 68% respectively.
Figure 6: % children seen by a NHS dentist in the previous 24 months by PCT, March 31st 2013

Source: NHS Dental Health Statistics, 2013, NHS HSCIC
The lowest take up was amongst children under 5, and the highest amongst primary school children.

<table>
<thead>
<tr>
<th>Age</th>
<th>North Lincolnshire</th>
<th>Y&amp;H</th>
<th>England</th>
</tr>
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<tbody>
<tr>
<td>0-2</td>
<td>20%</td>
<td>20%</td>
<td>25%</td>
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<tr>
<td>3-5</td>
<td>63%</td>
<td>72%</td>
<td>67%</td>
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<tr>
<td>6-12</td>
<td>78%</td>
<td>86%</td>
<td>85%</td>
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<tr>
<td>13-17</td>
<td>74%</td>
<td>79%</td>
<td>78%</td>
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<tr>
<td>0-17</td>
<td>65%</td>
<td>71%</td>
<td>68%</td>
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Source: NHS BSA Information Centre

Hospital admissions

Locally, children are still having extractions under general anaesthesia, which for many is a distressing experience and carries associated risks. Dental extractions following dental decay under general anaesthesia are the most common reason for scheduled hospital admissions amongst school aged children, accounting for an average 259 admissions of under 19s a year in North Lincolnshire, between April 2011-March 2013. Most of these admissions involve children between 5 and 9 years of age, where take up of routine dental services is lower than average.

The relationship between poor child dental health and social inequalities is confirmed by the graph below which shows the number of hospital admissions per 1,000 children aged 5- 15 years for dental extraction in North Lincolnshire, by deprivation score of neighbourhood, where the red line represents the average for North Lincolnshire.
What are our key strengths/assets?

The main risk factors for poor oral health include poor diet, inadequate exposure to fluoride and tobacco and alcohol use.

Fluoride is a naturally occurring mineral in water and it is possible through a process called water fluoridation to top up the levels to one part fluoride per million parts of drinking water (1ppm), a level associated with significantly less tooth decay. Water Fluoridation has been in place in North Lincolnshire for over forty years and the benefits in reduced levels of dental decay in 5 year old children, compared with areas which are not fluoridated, as evidenced amongst local children, has been clearly demonstrated across Yorkshire and Humber and nationally.

Water fluoridation remains a cost-effective population based public health intervention that has the ability to reach more people, including those at greatest need with the opportunity of reducing unacceptable inequalities in oral health. On average, children in fluoridated areas have 2.2 fewer decayed teeth and 15% more children are free from tooth decay as compared with those in non-fluoridated areas (PHE, 2014).

In 2000, the Medical Research Council confirmed the beneficial effect of fluoridation on reducing tooth decay and tackling oral health inequalities. The report also highlighted studies that suggested fluoridation reduces the amount of toothache thereby improving the quality of life of children and reducing the need for dental treatment involving general anaesthesia.

This was reinforced by a Public Health England Monitoring Report on Fluoride, (2014), which reported that:

- 28% fewer five year olds have dental decay in fluoridated areas compared with non-fluoridated areas
- 21% fewer 12 year olds with tooth decay in fluoridated areas compared with non-fluoridated areas
- The reduction in tooth decay amongst 5 and 12 year olds is greatest in fluoridated areas
- In fluoridated areas there are 45% fewer hospital admissions of children aged 1 – 4 years of age for dental extractions
- There is no evidence of increased rates of hip fractures or kidney stones in fluoridated areas

The significant improvements in dental health over the last 40 years are largely attributed to the wide use of fluoride, especially fluoride toothpaste. Fluoride toothpaste, mouthwash and fluoride varnish work well on the surface of the tooth (topical) and are effective at reducing tooth decay. Fluoride varnish can be applied to patients’ teeth by dentists or dental care professionals.

The local authority commissions the Community Dental Service Oral Health Promotion team to deliver a number of oral health improvement programmes based on the best available evidence and best practice. The main risks to oral health are diet, lack of regular exposure to fluoride and use of tobacco and alcohol.

As identified in the 2009-12 oral health improvement strategy, the key focus areas were:

- Optimising exposure to fluoride through various vehicles
- Working in partnership with others to improve oral health
• Implementation of Delivering Better Oral Health*
  *An evidence based toolkit on prevention for the dental team

It is recommended that an updated oral health improvement strategy should be developed in partnership with PHE.

Current commissioned oral health improvement activity includes:

• A dental resource box programme which supports teachers in delivery of evidence based prevention advice to primary school children. Linked to the national curriculum this resource box is accessible to all key stage 1 and 2 primary school children with a view to helping children adopt healthier lifestyle habits to improve their oral and general health. This is underpinned by partnership work with schools to reduce access to sugary drinks and snacks on school sites, through vending machines, tuck shops and school restaurants.
• Oral health training to provide training and regular updates for health and social care professionals & carers with a particular focus on vulnerable young families and children to support the ethos of giving children a healthy start. This training reflects the key messages included in Delivering Better Oral Health – an evidence based tool kit for prevention.
• Partnership work with staff, young families and their children at children centres including the distribution of toothbrushes and toothpaste, with a view to improving and reducing inequalities in oral health in children by encouraging twice daily tooth brushing from an early age. This supports the overarching principle of giving every child a healthy start. This includes advice on food choices, weaning and self-care to support children enjoying a good standard of oral and general health.
• Supporting national campaigns aimed at improving oral health which will include the following public health campaigns: National Smile Month, National No Smoking Day and Mouth Cancer Action Month.
• Supporting general dental practices adopt a preventative approach. This includes supporting the implementation of Delivering Better Oral Health, provision of ‘Making Every Contact Count’ training for dental practice teams and helping practices support national public health campaigns.
• Support teaching staff with the daily toothbrushing programme that takes place in special schools.

What are the key issues for commissioners and service providers to consider?

NHS England:

• Whilst the oral health of children in North Lincolnshire is relatively good compared with the national and regional average, some children continue to experience poorer oral health.
• Low levels of restorative care in children especially in younger age groups
• Evidence of variation in children’s’ oral health with evidence of significantly poorer health in Crosby and Park ward.
• There is lower than average provision of NHS dental services, especially in areas of no fluoridation
• Developing wide clinical engagement through the North Yorkshire and Humber Local Dental Network to ensure commissioned services are children centred, high quality and meet the needs of the population with a view to improving patient outcomes.
• There is a lower than average take-up of NHS dental care amongst North Lincolnshire children, and some evidence that it is falling further behind the national average.

Date: 21/07/14
Consider managing equitable access to NHS dental services for a growing child population.
Families should be clearly signposted to NHS dental services and have a raised awareness of the importance of their children accessing NHS dental services with regards to accessing clinical prevention, advice, necessary treatment and continuing care.
Accessing and appropriate interpretation of NHS Business Service Authority dental services data should help area teams monitor clinical prevention activity in general dental practice.
General dental practitioners should be encouraged to adopt a more preventative approach and a greater use of skill mix in preparation of the introduction of the new dental contract. This should include dental teams helping patients adopt healthier lifestyles.
Discuss and support dentists to incorporate the principles and shared learning from the dental pilots to existing dental contracts.

North Lincolnshire local authority

- In partnership with PHE, commissioned oral health improvement programmes should be based on best available evidence and best practice.
- Oral health improvement programmes should be fully evaluated to inform future development, innovation and provide value for money.
- Continue commissioning of surveys which includes supporting the NHS dental epidemiology programme. This will facilitate the planning and evaluation of oral health improvement programmes and dental services, including the monitoring of the health impact of water fluoridation.
- There is an opportunity for improved partnership working with greater collaboration between oral health and public health programmes with a view to contributing to the wider public health agenda, reflecting the common risk factor approach.
- It is essential that oral health is integrated into the healthy child pathway so that appropriate support and advice including signposting can be given, especially in areas of poor access or poor take up of services.
- Despite the efforts of local oral health improvement programmes, which includes oral health education within communities, schools and dental practices, not all of the population brush their teeth with a fluoridated toothpaste, limit daily sugar consumption or adopt healthy lifestyles. Continual engagement with more vulnerable families and children should be a priority.

Which groups are most affected by this?

Children’s teeth have become healthier in recent decades, but children living in areas of relative deprivation experience much higher levels of dental decay. Recent national data suggest that the gap in dental health between the richest and poorest children is also getting wider, with a 7 fold difference in dental decay amongst 5 year olds between English CCG areas.

In England’s most deprived 20% of areas, 60 per cent of five year-olds and 70 per cent of eight year-old pupils have obvious decay in their primary “milk” teeth, compared with 40 per cent of five year-olds and 55 per cent of eight year-olds attending schools in the country’s 20% least deprived areas. (BDA, 2011)

Inequalities in dental decay associated with some ethnic minority groups are more pronounced among pre-school children than in any other age group. To date, most studies have focused on the
South Asian community, where religious background and the ability of the mother to speak English have emerged as important determinants of oral health status.

Little information is currently available for new migrant communities from Eastern Europe, North Lincolnshire’s largest, and growing BME group, or for any ethnic minority groups not living in deprived areas. Importantly, the inward migrating of families will include children who have not benefited from water fluoridation. Potential child oral health inequalities in these groups require investigation. Consideration should be given to commissioning dental surveys of this vulnerable group of children in the future to understand the distribution and severity of dental decay in our local population. This will help in the planning and evaluation of appropriate dental services and oral health improvement programmes to meet the needs of the population.

Almost all dental disease affecting children is preventable, hence the need to commission oral health promotion and preventive strategies which are targeted toward the most vulnerable groups.

There is further evidence to suggest that, despite high levels of dental need, minority ethnic groups experience barriers to accessing oral health care. These include language, a mistrust of dentists, cost, anxiety, cultural misunderstanding and concern about standards of hygiene (although perceived barriers differ across ethnic groups). It is important to consider the cultural characteristics of each subgroup when designing oral health promotion activities for diverse ethnic groups.

The local Community Dental Service has specific programmes for vulnerable groups within the child population, e.g. children with special needs, looked after children. These programmes include not only specialised treatment services but outreach sessions to give advice and referral to dental services for vulnerable families, carers and their children.

NHS England has established a vulnerable group task group to explore how dental services can be improved for vulnerable patients and individuals who are not accessing care. One of three work streams includes vulnerable children. It will be important that the Local Dental Network supports the effective localisation and implementation of emerging national guidance for commissioning dental services for this group.

**What are the views of local people? (Community/Patient Voice)**

Engaging and involving communities in the planning, design and delivery of dental services and oral health improvement programmes can lead to a more joined-up, co-ordinated and efficient services that are more responsive to local community needs. Public participation can also help to build partnerships with communities and identify areas for service improvement (NHS England 2013). The effective participation of the public in the commissioning process itself, so that services reflect the needs of local people is essential. Understanding the views of local people is instrumental to the planning and delivery of dental services and oral health improvement programmes. PHE can play a key role in supporting public participation to ensure that services and oral health improvement programmes are tailored and responsive to the needs of these vulnerable children.

There are no national surveys of children’s’ (or their carers) views on dental health services, although there are one or two questions asked of adults about access to dental health services in the national patient surveys. In 2012, 93% of North Lincolnshire patients who were asked, who said they had tried to get an appointment in the last 3 months with a NHS dentist said they had been successful. This compares with 96% nationally and 94% across the region.
In addition, poor access to NHS dental health services and specifically difficulties in getting onto a NHS dental practice list continues to feature as a priority concern in many local patient satisfaction surveys and public consultations. (JSNA Consultation 2011/12). This is in spite of significant efforts to increase local capacity and access in recent years. In the 2011/12 JSNA consultation, the areas of Barton & Winterton, Brigg and South Killingholme were identified by local residents as local hotspots where access was particularly difficult.

‘Who Cares’, (North Lincolnshire’s Local Links service, which preceded the establishment of Healthwatch) also completed a local research study with 75% local NHS dentists and 450 residents regarding access to dental health services in North Lincolnshire, including a ‘mystery shopper exercise’. This research was undertaken in 2011, and was published in September 2012. The report made the following observations and recommendations:

- Local dentists wanted a stronger emphasis in schools on oral health education.
- Practices wanted clearer public information to inform patients about how to access dentists and emergency treatment.

**What are our future needs?**

The number of births to North Lincolnshire women has been rising steadily since the middle of the last decade and whilst the number of secondary school age children has been falling in recent years, the number of children of primary school age has been rising. Population growth alone will result in increasing demand on local dental health provision for children, especially in our poorer urban areas where most of the recent and future projected growth either has or will occur.

Natural growth is also likely to increase the demand for provision for children with additional needs. Between now and 2020 the official ONS projection is a 7% growth in the overall child (0-17) population of North Lincolnshire, including a 13% growth in children aged 3-12 years. However, some of the largest growth is expected amongst North Lincolnshire’s growing BME populations, whose dental health needs remain unknown.

![Figure 9: Projected growth in North Lincolnshire, 2011-2020](image)

Source: ONS, 2011 based population projections
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ONS (2013) 2012 based population projections


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