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# LEICESTERSHIRE JOINT STRATEGIC NEEDS ASSESSMENT

## ORAL HEALTH OF CHILDREN AND YOUNG PEOPLE CHAPTER

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Whilst every effort has been made to ensure the accuracy of the information contained within this report, Leicestershire County Council cannot be held responsible for any errors or omission relating to the data contained within the report.

## FOREWORD

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The purpose of the Joint Strategic Needs Assessment (JSNA) is to:

- To improve the health and wellbeing of the local community and reduce inequalities for all ages.
- To determine what actions the local authority, the local NHS and other partners need to take to meet health and social care needs, and to address the wider determinants that impact on health and wellbeing.
- To provide a source of relevant reference to the Local Authority, Clinical Commissioning Groups (CCGs) and NHS England for the commissioning of any future services.

The Local Authority and CCGs have equal and joint statutory responsibility to prepare a Joint Strategic Needs Assessment (JSNA) for Leicestershire, through the Health and Wellbeing Board. The Health and Social Care Act 2012 amended the Local Government and Public Involvement in Health Act 2007 to introduce duties and powers for Health and Wellbeing Boards in relation to JSNAs. The JSNA offers an opportunity for the Local Authority, CCGs and NHS England's plans for commissioning services to be informed by up to date information on the population that use their services. Where commissioning plans are not in line with the JSNA, the Local Authority, CCGs and NHS England must be able to explain why.

The Health and Wellbeing Board has agreed that the JSNA will be published in subject-specific chapters throughout a three-year time period. Chapters will be developed in line with CCG and local authority commissioning cycles. As many of the relationships required for the JSNA in Leicestershire are wide ranging, involving representation from NHS England, CCGs, Leicestershire Partnership Trust, University Hospitals of Leicester, District Councils and the voluntary sector, a JSNA Reference Group has been established. This Reference Group supports the JSNA work across the Health and Wellbeing Board. To examine the detail of the chapters, Task and Finish groups have been established to bring together local professionals, where they can share their expert knowledge on the work area being examined. The outputs of the JSNA will include:

1. Subject-specific chapters of an assessment of current and future health and social care needs
2. An online infographic summary of each chapter available on the internet
3. An online data dashboard that is updated on a quarterly basis to allow users to self-serve high level data requests

This JSNA chapter has reviewed the population health needs of the people of Leicestershire in relation to Oral Health in Children and Young People. This has involved looking at the determinants of the Oral Health, the health needs of the population in Leicestershire, the impact of the Oral Health, the policy and guidance supporting Oral Health, existing services and the breadth of services that are currently provided. The unmet needs and recommendations that have arisen from this needs assessment are discussed.

Please note, the majority of indicators presented in this needs assessment are from national sources so are subject to a time lag due to the time required for data collection, data analysis and publication. Where possible, comparisons have been made to national averages and local context has been included. The term significance is used throughout the report and refers to statistical significance. This examines if the result presented is different to the national result, due to something other than chance. Most often, this is calculated using 95% confidence intervals.

## EXECUTIVE SUMMARY

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In Leicestershire, nearly one in five of our three-year olds, and one in four of our five-year olds have decayed, missing or filled teeth. The latest data shows 22.3% of five-year olds have experience of tooth decay, with 25% of five-year olds and 31.4% of 12-year olds attending special support schools having tooth decay. Of the three year olds surveyed in Leicestershire, 18.6% have some dental decay (more than the national average). Most areas in Leicestershire have seen a reduction in dental decay in five-year olds, however Oadby and Wigston has seen an increase in decayed, missing or filled teeth.

Many factors affecting oral health are also linked to deprivation. More deprived groups are more likely to engage in multiple unhealthy behaviours, have poorer oral health and are more likely to be hospitalised for dental health problems. Consequently improving oral health in all children in proportion to their oral health need will contribute to reducing health inequalities.

Whilst the average oral health of children in Leicestershire is similar to the England average, this still represents a substantial burden of oral ill health, with a significant impact on the health and wellbeing of these children and their families. A quarter (26%) of children having extractions had missed days from school because of dental pain, with an average of 3 days of school missed due to dental problems. Two thirds (67%) of children reported pain and 38% had lost sleep due to pain. Tooth decay and dental pain can also affect eating and speech development. As tooth decay is considered largely preventable, but with a substantial effect on a child's wellbeing, we need to continually strive to improve the oral health of the children of Leicestershire and reduce the level of decayed, missing and filled teeth in them. Increasing coverage of all child health programmes, whether oral health specific or more general, is an important part of this. This should follow the principle of proportionate universalism, where all children and parents are offered support and programmes to improve children's oral health, with resources targeted at those with greater levels of need, and higher levels of tooth decay.

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## **1. Who is at risk?**

Oral health problems in children are largely preventable. Oral health is an important aspect of a child's overall health status and is seen as a marker of wider health and social care issues, including poor nutrition and obesity. A combination of healthy diet and practising good dental hygiene can help to ensure a child has healthy teeth and gums.

### **1.1. Children in poverty**

Significant inequalities in oral health exist with children in deprived communities having poorer oral health than those living in more affluent areas. In England in 2014, 20.1% of children were in low income families (children living in families in receipt of out of work benefits or tax credits where their reported income is less than 60% median income). The figure for the East Midlands was 19.1% and the Leicestershire value was 12.4% which is significantly better than the England value. Within Leicestershire the proportions varied from 8.5% in Harborough to 14.3% in Charnwood and 14.4% in North West Leicestershire.<sup>1</sup>

### **1.2. Breastfeeding**

The current evidence and guidance on breastfeeding and dental health states that breastfeeding up to 12 months of age is associated with decreased risk of tooth decay.<sup>2</sup> Health Matters: Child Dental Health (2017)<sup>4</sup> states:

Health professionals, such as midwives and health visitors, should support and encourage women to breastfeed. Creating the right environment to promote this is crucial. The UNICEF Baby Friendly Initiative provides a robust evidence based framework to develop a whole-systems approach to breastfeeding. Delivering Better Oral Health<sup>3</sup> recommends that:

- Breast milk is the only food or drink babies need for around the first 6 months of their life. First formula milk is the only suitable alternative to breast milk
- bottle-fed babies should be introduced to drinking from a free-flow cup from the age of 6 months and bottle feeding should be discouraged from 12 months old
- only breast or formula milk or cooled, boiled water should be given in bottles
- only milk or water should be drunk between meals and adding sugar to foods or drinks should be avoided

The latest data from 2016/17 shows all districts in Leicestershire, apart from Harborough, have a significantly worse prevalence of breastfeeding initiation than the national average.<sup>1</sup>

Dental teams should continue to support and encourage mothers to breastfeed.

### **1.3. School readiness**

Poor dental health impacts not just on the individual's health but also their wellbeing and that of their family. Children who have toothache or who need treatment may have pain, infections and difficulties with eating, sleeping and socialising. Children who have toothache or who need treatment may have to be absent from school and parents may also have to take time off work to take their children to a dentist or to hospital. Oral health is therefore an important aspect of a child's overall health status and of their school readiness which can also affect school attendance and educational attainment.<sup>4</sup>

In 2016/17, the proportion of children with a good level of development at age 5 was 70.1% for Leicestershire. This is statistically similar to the England value of 70.7%. The proportion of Year 1 children achieving the expected level in the phonics screening test was 81.6%. This is statistically similar to the England proportion of 81.1%.<sup>1</sup>

### **1.4. Excess weight in children**

Whilst obesity may not be directly linked to tooth decay, a child's poor diet in relation to their weight may also affect the health of their teeth. In 2016/17, the prevalence of overweight (including obese) among children in Reception was 20.3% for Leicestershire. This is significantly better than the England value of 22.6%. Within Leicestershire the proportions varied from 18.8% in Oadby and Wigston to 22.0% in Melton. In 2016/17, the prevalence of overweight (including obese) among children in Year 6 was 29.6% for Leicestershire. This is statistically better than the England value of 34.2%. Within Leicestershire the proportions varied from 24.5% in Harborough to 33.2% in Charnwood.<sup>1</sup>

The number of fast food outlets in Leicestershire in 2014 was 65.6 per 100,000 population. This is significantly better than the England value of 88.2 per 100,000 population. Across Leicestershire, the values ranged from 51.1 in Blaby to 76.9 per 100,000 population in Oadby and Wigston.<sup>5</sup>

### **1.5. Unpaid carers**

The 2011 Census showed the percentage of people with 'Not Good' general health was generally higher among those providing unpaid care compared with those not providing it, and that this percentage rose with greater amounts of unpaid care provided.<sup>6</sup> This indicates that care provision has a detrimental impact on general health, which may encompass oral health. The proportion of children aged 0-15 years in Leicestershire in 2011 that provide one or more hours of unpaid care per week was 0.94%. This is significantly better than the



England value of 1.11%.<sup>6</sup>

## **1.6. Water fluoridation**

Public Health England's Water fluoridation, Health monitoring report for England 2014<sup>7</sup>, reported the following:

"On average, five-year olds in fluoridated areas are 15% less likely to have had tooth decay than those in non-fluoridated areas. When deprivation and ethnicity (important factors for dental health) are taken into account, five-year olds in fluoridated areas are 28% less likely to have had tooth decay than those in non-fluoridated areas.

On average, 12-year olds in fluoridated areas are 11% less likely to have had tooth decay than those in non-fluoridated areas. When deprivation and ethnicity are taken into account, 12-year olds in fluoridated areas are 21% less likely to have had tooth decay than those in non-fluoridated areas.

The reduction in tooth decay in children of both ages in fluoridated areas appears greatest among those living in the most deprived local authorities.

In fluoridated areas, there are 45% fewer hospital admissions of children aged one to four for dental caries (mostly for extraction of decayed teeth under a general anaesthetic) than in non-fluoridated areas.

A previous study of fluoridated Newcastle upon Tyne and non-fluoridated Manchester found that the number of 12-year old children with moderate dental fluorosis or more (fluorosis score of TF4 and above) is very low, at around 1% in Newcastle and 0.2% in Manchester. Children in fluoridated Newcastle upon Tyne are more likely than those in non-fluoridated Manchester to develop fluorosis of any level. However, children in fluoridated Newcastle have less tooth decay than those in non-fluoridated Manchester."

According to a survey in 2016, Leicestershire County Council has an established community water fluoridation scheme.

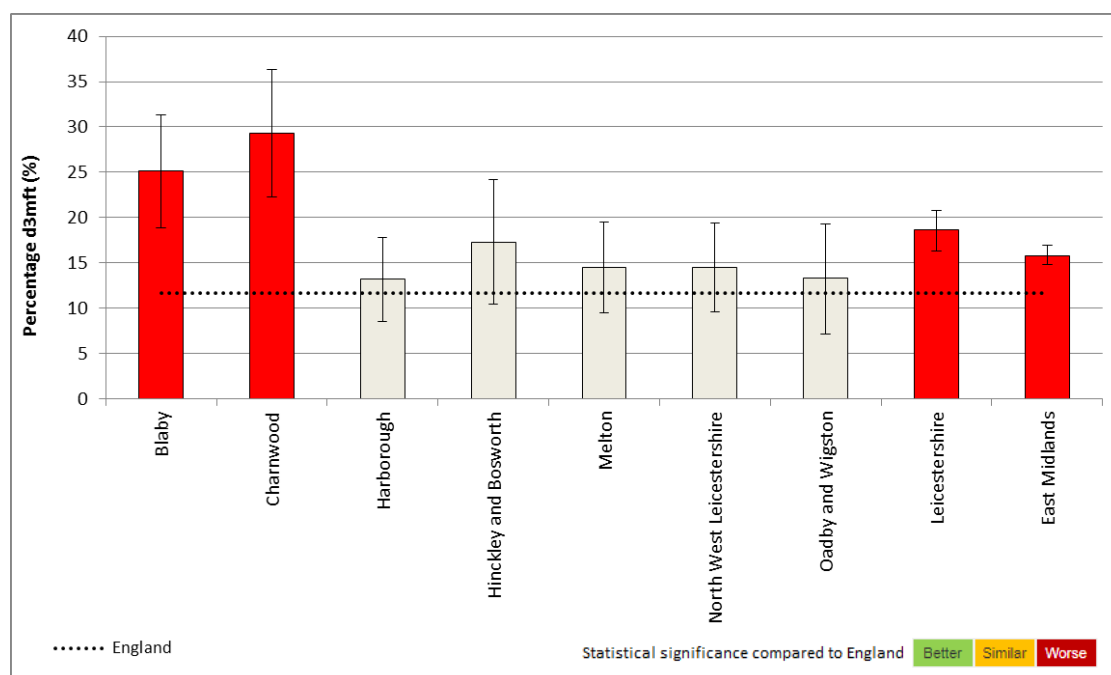
## **2. Level of need in Leicestershire**

### **2.1. Survey of three-year olds**

Findings from Public Health England's (PHE) 2013 national dental epidemiology survey of three-year old children showed in England, 11.7% of three-year-old children had experience of obvious dental decay (caries), having one or more teeth that were decayed to dentinal level, extracted or filled because of caries (%d3mft>0). The East Midlands had the highest

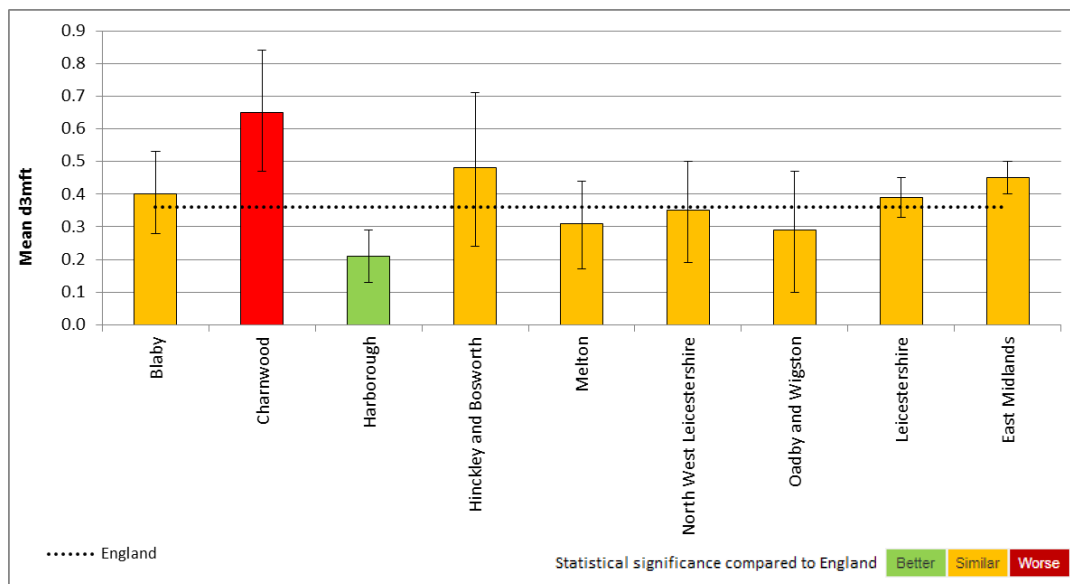
percentage of decay out of all the regions in England (15.3%) and the East of England, the lowest (8.2%). Leicestershire had a significantly higher percentage of decay compared to the national average (18.6%). This is the second highest percentage throughout the East Midlands behind Leicester only.<sup>8</sup> Blaby and Charnwood have been highlighted as relatively affluent lower-tier local authorities where caries prevalence was high: Blaby (25.1%), Charnwood (29.3%). The prevalence of d3mft>0 for all other districts in Leicestershire was based on fewer than 30 volunteers so the estimate was not considered robust.<sup>8</sup>

**Figure 1: Percentage of three-year-old children with one or more teeth that were decayed to dentinal level, extracted or filled because of caries (%d3mft>0), 2012/13<sup>8</sup>**

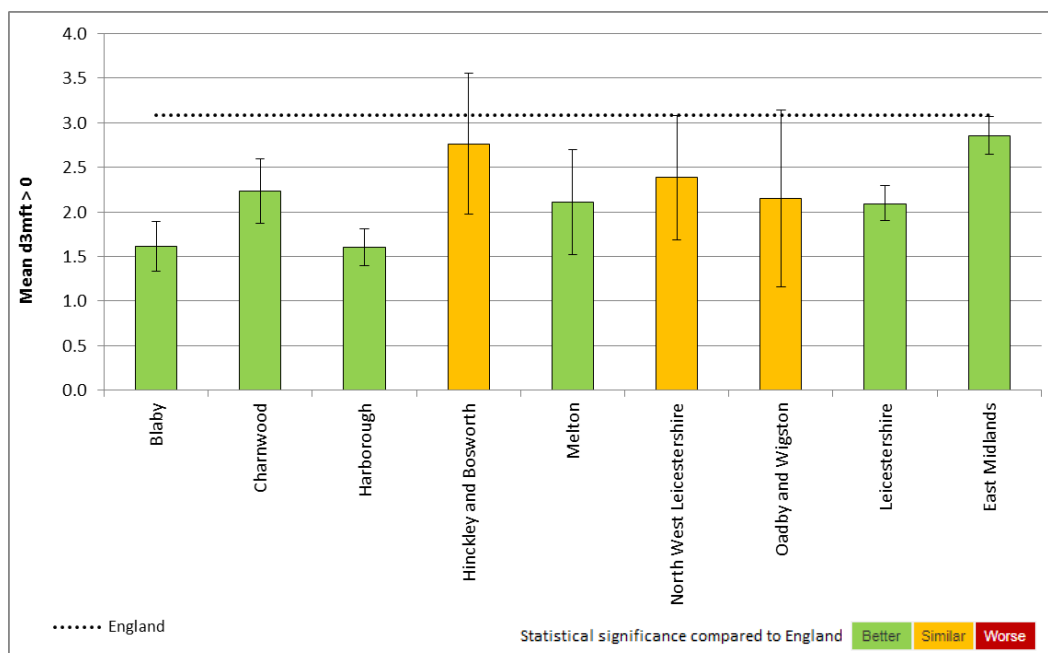


In England, the average number of teeth per child affected by decay (decayed, missing or filled teeth (d3mft)) was 0.36. At the regional level this ranged from 0.24 in the East of England, to 0.47 in the North West. East Midlands had the second highest average number at 0.45. The average number of teeth affected by decay in Leicestershire was 0.39, lower than the East Midlands average. Figure 2 shows Charnwood had the highest average number of teeth per child affected by decay (d3mft) out of the Leicestershire districts, at 0.65, significantly higher than the national average. Harborough performs significantly better (0.21) than the national average, whereas all other districts in the county perform similar to the national average.<sup>8</sup>

**Figure 2: Average number of decayed, missing or filled teeth (d3mft) in three year olds, 2012/13**



**Figure 3: The average number of decayed, missing or filled teeth (d3mft) among the three-year old children with decay experience, 2012/13**

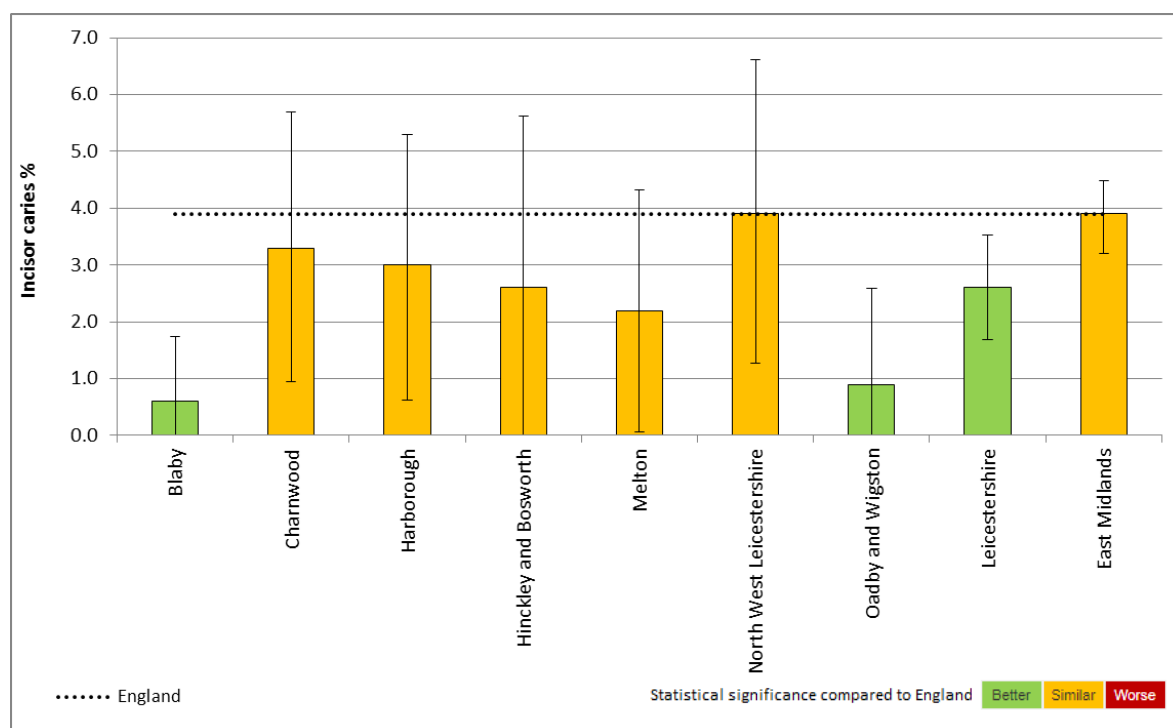


Among the children with decay experience, the average number of decayed, missing (due to decay) or filled teeth was 3.08 (most children have all 20 primary teeth present by age three). The East Midlands average was 2.85. Across upper-tier local authority level the variation of severity among affected children is wide, but Leicestershire had the lowest average at 2.09 d3mft with Bristol the highest (4.75). At lower-tier local authority, Blaby had

the lowest average of 1.61. Figure 3 shows four districts in Leicestershire performed significantly better than the national average. Three districts performed similar to the national average, these were Hinckley and Bosworth (2.76), North West Leicestershire (2.39) and Oadby and Wigston (2.15).<sup>8</sup>

Incisor caries is an aggressive form of tooth decay that affects upper incisors and can be rapid and extensive in attack. It is associated with long term bottle use with sugar-sweetened drinks, especially when these are given overnight or for long periods of the day. The percentage of 3-year-old children who have experienced incisor caries in Leicestershire was 2.6%, significantly better than the national percentage of 3.9%. Figure 4 shows there are two districts in Leicestershire that had a significantly lower prevalence than the national average, these are Blaby (0.6%) and Oadby and Wigston (0.9%). All other districts in Leicestershire perform similar to the national average.<sup>8</sup>

**Figure 4: Incisor caries prevalence in three year olds, 2012/13**

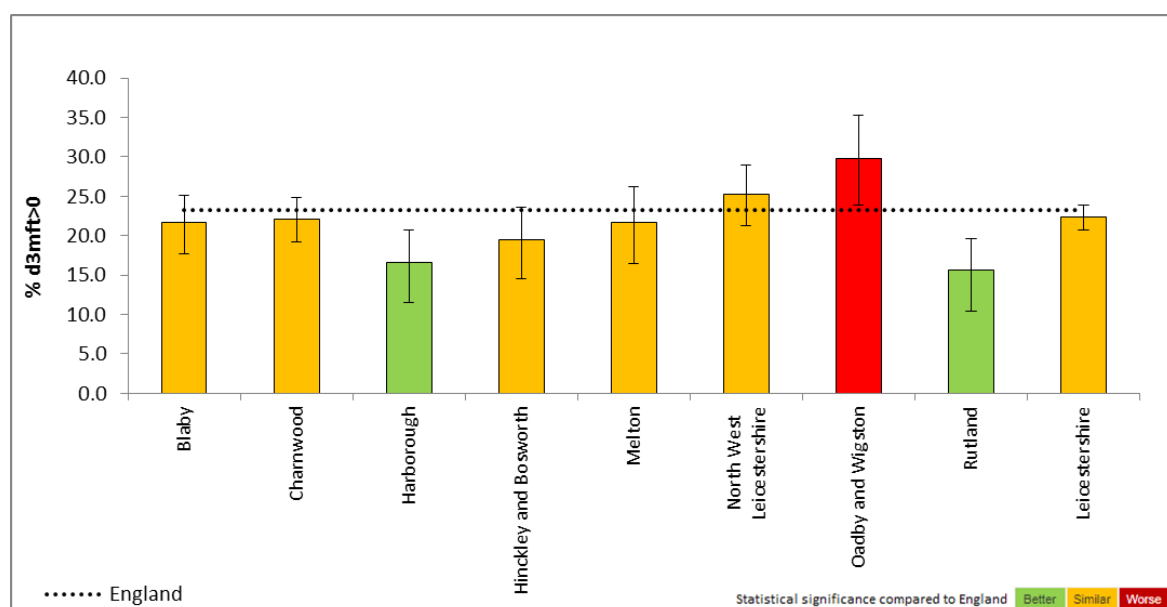


## 2.2. Survey of five year olds

Finding from PHE's 2017 national dental epidemiology survey of five-year-old children who attended mainstream, state-funded schools across Leicestershire during the 2016/17 academic year showed in England, 23.3% of five-year-old children had experience of obvious dental decay (caries), having one or more teeth that were decayed to dentinal level, extracted or filled because of caries (%d3mft>0). Out of all the regions in England, the East

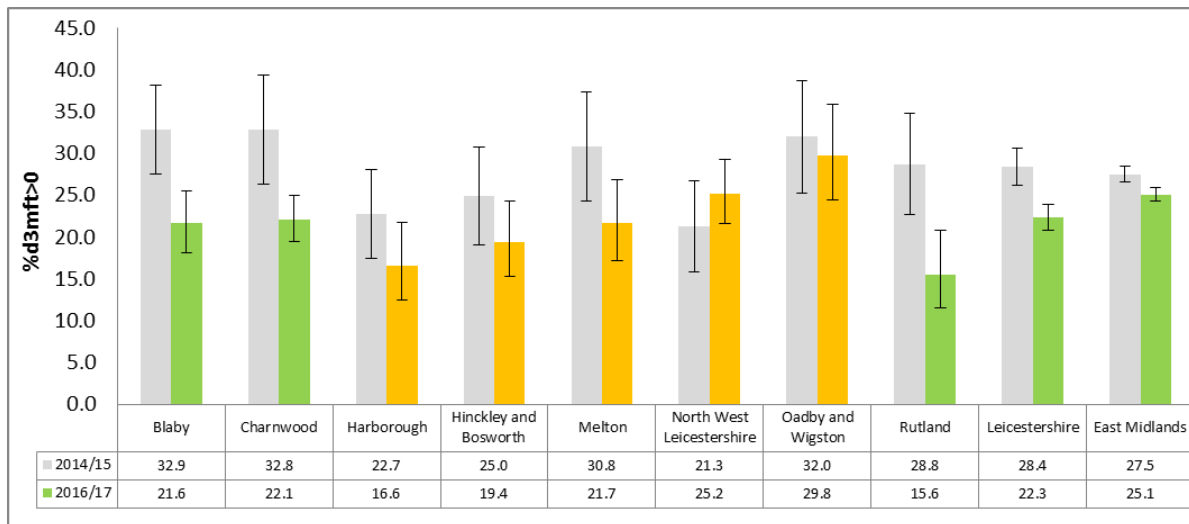
Midlands had the fifth highest percentage of decay (25.1%) with the North West recording the highest proportion (33.9%) and the South East of England the lowest (16.4%). In Leicestershire, the percentage of decay was 22.3%; this is similar to the England average. When examining the Leicestershire districts, Oadby and Wigston performed significantly worse (29.8%) than the national percentage and Harborough performed significantly better than nationally (16.6%). All other districts performed similar to the national average.<sup>9</sup>

**Figure 5: Percentage of five-year-old children with one or more teeth that were decayed to dentinal level, extracted or filled because of caries (%d3mft>0), 2016/17**



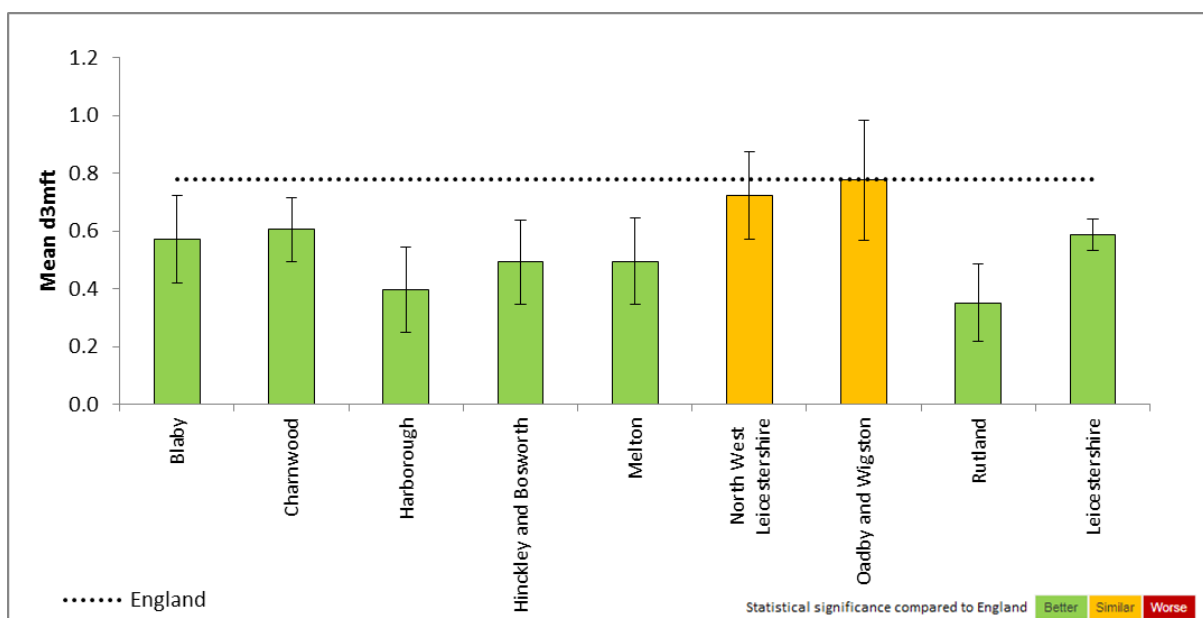
From 2014/15 to 2016/17 there has been a significant improvement in the percentage of children with obvious dental decay (%d3mft>0) in Leicestershire (28.4% to 22.3%) and Rutland (28.8% to 15.6%). When examining Leicestershire districts, Blaby and Charnwood have both seen a significant improvement since the last survey moving from 32.9% to 21.6% and 32.8% to 22.1% respectively. All other districts have seen no significant improvement or decline. North West Leicestershire is the only district that has witnessed an increase in the percentage of children with obvious dental decay since the last survey from 21.3% to 25.2%, although this is not significant.<sup>9</sup>

**Figure 6: Percentage of five-year-old children with one or more teeth that were decayed to dentinal level, extracted or filled because of caries (%d3mft>0), 2014/15 to 2016/17**



In England, the average (mean) number of teeth per child affected by decay (decayed, missing or filled teeth (d3mft)) was 0.8. At the regional level this ranged from 0.5 in the South East of England to 1.3 in the North West. The average d3mft in the East Midlands was 0.8. The average number of teeth affected by decay in Leicestershire was 0.6 which is significantly lower than the England average. North West Leicestershire and Oadby and Wigston were the only districts in the county to perform similar to the national average at 0.7 and 0.8 respectively. All other districts performed significantly better than the national average.<sup>9</sup>

**Figure 7: Average number of decayed, missing or filled teeth (dmft) in five year olds, 2016/17**



Among the children with decay experience, the average number of decayed, missing (due to decay) or filled teeth (mean d3mft (% d3mft > 0)) in England was 3.4. The East Midlands average was 3.3. At upper-tier local authority level there is clear variation of this measure with affected children in Rutland and Wiltshire having only 2.3 teeth affected on average, while those in Harrow had 4.8. Leicestershire has a significantly lower average than the national at 2.6.<sup>9</sup>

**Figure 8: The average number of number of decayed, missing or filled teeth (d3mft) among the five-year old children with decay experience, 2016/17**

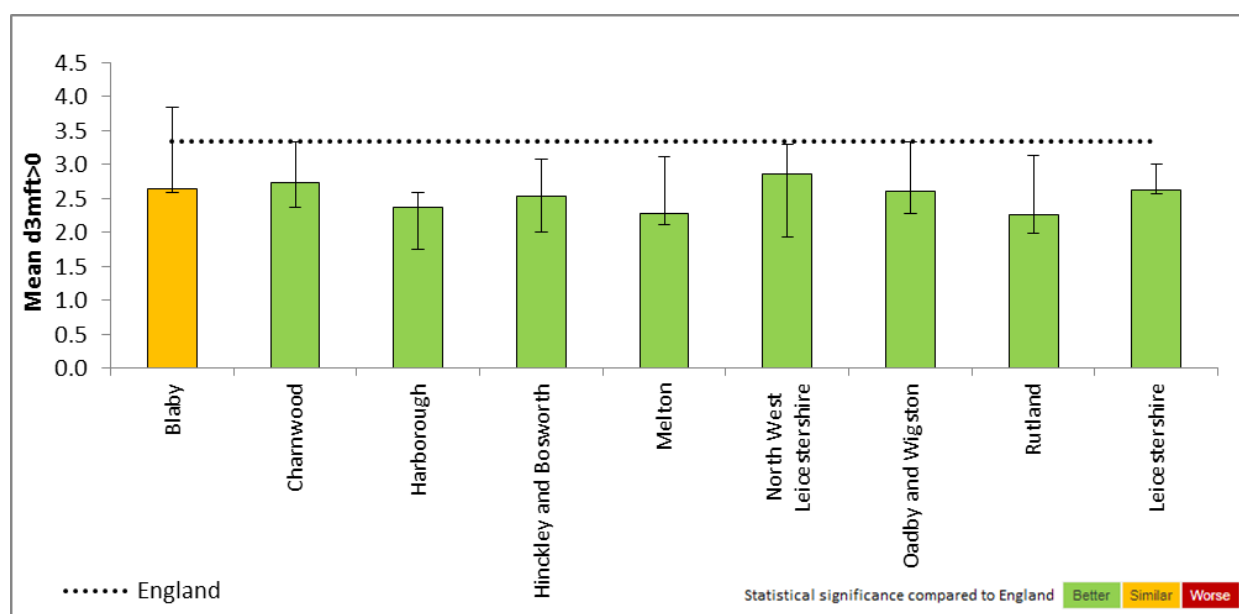


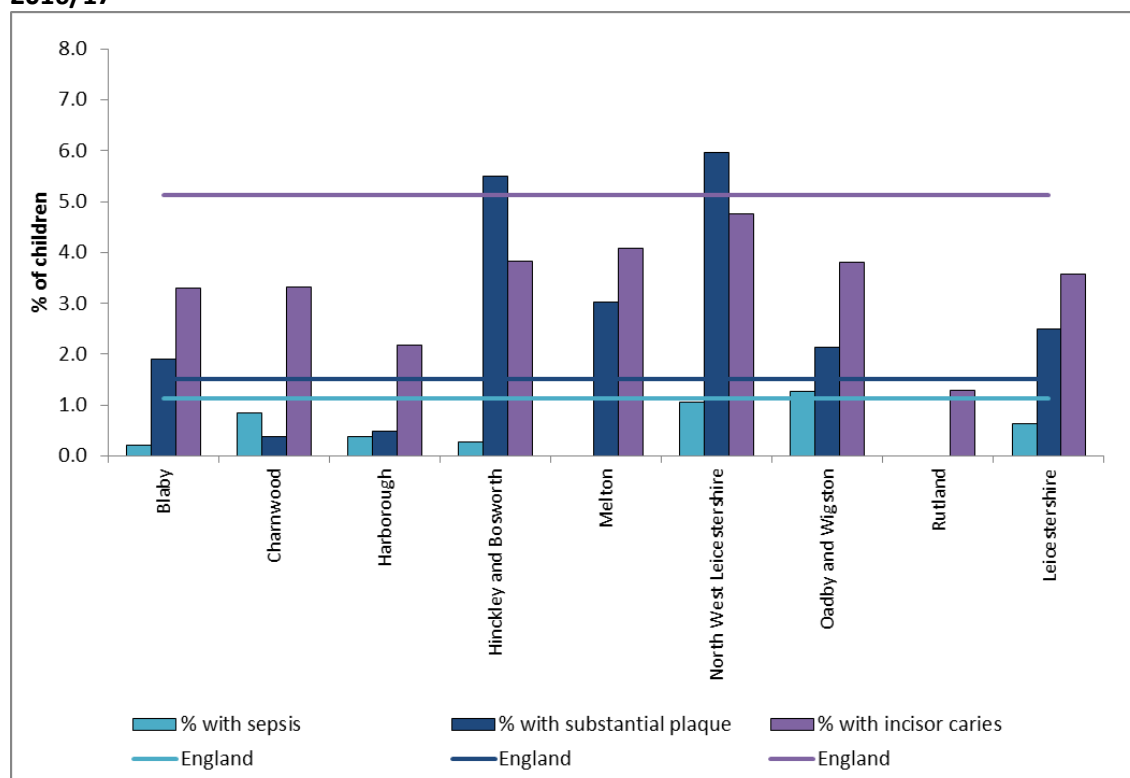
Figure 9 examines the percentage of children who have substantial plaque, and/or sepsis, and/or incisor caries in England, East Midlands and Leicestershire. The presence of substantial amounts of plaque compared with 'visible' or no plaque provides a proxy measure of children who do not brush their teeth, or brush them rarely. Such children cannot benefit from the protective effects of fluoride in toothpaste on dental decay. A 'substantial amount of plaque' was recorded for 1.5% of volunteers in England and in Leicestershire, 2.5% of volunteers had a 'substantial amount of plaque'. North West Leicestershire had the highest percentage of children with substantial plaque (6.0%) in the Leicestershire districts and Charnwood the lowest (0.4%).<sup>9</sup>

At the age of five-years, nearly all oral sepsis will be the result of the dental decay process rather than originating from gum problems. A small number of cases will be linked to traumatic injury of teeth, but no diagnosis of cause was recorded during this survey. Oral sepsis was defined in the protocol as the presence of a dental abscess or sinus recorded by

visual examination of the soft tissues. Oral sepsis was recorded for 1.1% of volunteers in England and 0.6% of children in Leicestershire. Nationally, the level was generally higher in those areas where there were higher levels of decay. Throughout the Leicestershire districts, Oadby and Wigston had the highest local reported percentage of children with sepsis (1.3%) with Melton the lowest (0.0%).<sup>9</sup>

It is useful to know what proportion of children had dental decay affecting one or more of their incisor (front) teeth. This type of decay is usually associated with long term bottle use with sugar-sweetened drinks, especially when these are given overnight or for long periods during the day. Overall, the national prevalence of incisor decay was 5.1% and varied by region, ranging from 3.3% in the South East to 7.9% in the North West. Comparison at upper tier local authority level shows far wider variation with a prevalence of 0.8% in North Somerset to 17.8% in Harrow. There is likely to be marked geographic variation as this type of decay is closely linked with specific health behaviours which are influenced by local cultural norms. Children with incisor decay are likely to have more teeth affected than is the case for general decay, so tackling this problem may lead to relatively higher benefits. In Leicestershire, 3.6% of children had dental decay affecting one or more of their incisor teeth. Throughout Leicestershire, North West Leicestershire had the highest local reported percentage of children with incisor caries (4.8%) and Harborough the lowest (2.2%).<sup>9</sup>

**Figure 9: Percentage of five-year-old children with substantial plaque, sepsis or incisor caries, 2016/17**





## 2.3. Survey of special support schools

### 2.3.1. Five-year old children

Findings from PHE's 2014 national dental epidemiology survey of five year old children attending special schools showed in England, 22.5% of children had experience of obvious dental decay (caries), having one or more teeth that were decayed to dentinal level, extracted or filled because of caries (%d<sub>3</sub>mft>0). The North West had the highest percentage of decay out of all the regions in England (33.5%) and the South West, the lowest (9.9%). Leicestershire had a similar percentage of decay compared to the national average (25.0%). Please note the numbers taking part in this survey are small. In Leicestershire, only 33 pupils had a plaque and sepsis assessment and out of the East Midland region, data was only available for Leicestershire and Lincolnshire due to small sample sizes.<sup>10</sup>

The average number of teeth per child affected by decay (d<sub>3</sub>mft) nationally was 0.88. At the regional level this ranged from 0.33 in the South West to 1.49 in the North West. The East Midlands had the second lowest average number at 0.48. The average number of teeth affected by decay in Leicestershire was 0.78, similar to the national and regional average.<sup>10</sup>

Among the children with decay experience, the average number of decayed, missing (due to decay) or filled teeth was 3.9 (most children have all 20 primary teeth present by age three). In the East Midlands the average was 3.2 and in Leicestershire the average was 3.1. The Leicestershire average shows no significant difference to the national and regional average. At a regional and local level, this indicator is based on fewer than 20 volunteers so is unlikely to be robust.<sup>10</sup>

**Table 1: Oral Health Survey of five-year-old children attending special support schools, 2013/14**

Area	5-year-olds attending special support schools	Dental chart completed	Plaque assessment completed	Sepsis assessment completed	Mean d <sub>3</sub> mft	% d <sub>3</sub> mft > 0	Mean d <sub>3</sub> mft (% d <sub>3</sub> mft > 0)
England	2,941	1,415	1,834	1,813	0.88	22.5	3.90
East Midlands	155	107	129	128	0.48	15.0	3.19
Leicestershire	37	32	33	33	0.78	25.0	3.13

Based on fewer than 20 volunteers

### 2.3.2. Twelve year old children

Findings from PHE’s 2014 national dental epidemiology survey of 12 year old children attending special schools in England showed 29.2% of children had experience of obvious dental decay (caries), having one or more teeth that were decayed to dentinal level, extracted or filled because of caries (%d<sub>3</sub>mft>0). The North West had highest percentage of decay out of all the regions in England (40.5%) and the South East, the lowest (21.6%). Leicestershire had a similar percentage of decay compared to the national average (31.4%). Please note the numbers taking part in this survey are small. In Leicestershire, only 35 pupils had a plaque and sepsis assessment and out of the East Midland region. Data was only available for the county local authorities.<sup>10</sup>

The average number of teeth per child affected by decay (d<sub>3</sub>mft) nationally was 0.69. At the regional level this ranged from 0.50 in the West Midlands to 1.04 in the North West. The East Midlands had an average number of 0.90. The average number of teeth affected by decay in Leicestershire was 0.69, similar to the national and regional average.<sup>10</sup>

Among the children with decay experience, the average number of decayed, missing (due to decay) or filled teeth in England was 2.4. The regional average was 2.6 and in Leicestershire the average was 2.2. The Leicestershire average shows no significant difference to the national and regional average, although the Leicestershire figure is based on fewer than 20 volunteers so is unlikely to be robust.<sup>10</sup>

**Table 2: Oral Health Survey of 12-year-old children attending special support schools, 2013/14**

Area	12-year-olds attending special support schools	Dental chart completed	Plaque assessment completed	Sepsis assessment completed	Mean d <sub>3</sub> mft	% d <sub>3</sub> mft > 0	Mean d <sub>3</sub> mft (% d <sub>3</sub> mft > 0)
<b>England</b>	<b>6,873</b>	<b>3,055</b>	<b>3,385</b>	<b>3,362</b>	<b>0.69</b>	<b>29.2</b>	<b>2.37</b>
East Midlands	510	211	221	220	0.90	34.1	2.63
Leicestershire	79	35	35	35	0.69	31.4	2.18

Based on fewer than 20 volunteers

### 2.4. Access to NHS dentistry

NHS England commissions all NHS Dental Services including General Dental Practice and Specialties including: Oral surgery and Oral Medicine, Orthodontics, Special care dentistry

restorative dentistry and paediatric dentistry, for anyone who seeks it, regardless of where they live. A 12 month time period is used for access reporting to reflect National Institute for Health and Care Excellence (NICE) guidelines which recommend that the longest interval between oral reviews for children should be 12 months.<sup>11</sup> Please note the data presented below does not take into account those who choose to access dentistry under private contract.

#### **2.4.1. Leicestershire**

In Leicestershire, 81,067 children saw an NHS dentist in the 12 months to 30 June 2017, representing 59.7% of all children resident in the county. Nationally 58.2% of all children were seen by an NHS dentist in the 12 months to June 2017. In the previous year, 59.5% of children in Leicestershire were seen by an NHS dentist in the 12 months to June 2016, higher than the national percentage of 57.6%.<sup>1213</sup>

#### **2.4.2. Districts in Leicestershire**

The percentage of the population accessing dental services in 24 months has been examined at a district level between 2014/15 to 2015/16. This looks at the number of unique dental patients resident in each Leicestershire district, expressed as a proportion of the average population in 2014 and 2015, by quinary age band.

Nationally, 37.8% of the population aged 0-4 years accessed NHS dental services in 24 months. All districts in Leicestershire had a higher percentage than the national average. Within Leicestershire the proportions varied from 48.6% in Blaby to 45.3% in Charnwood. At the 5-9 years age band, the national percentage of population accessing NHS dental services in 24 months increased to 81.5%, but all districts in Leicestershire continued to have a higher percentage than the national average. Within Leicestershire, the proportions varied from 86.8% in Hinckley and Bosworth to 84.0% in Blaby and Melton. At the 10-14 years age band, the national percentage of population accessing NHS dental services in 24 months continued to increase to 84.6%, but all districts in Leicestershire continued to have a higher percentage than the national average. Within Leicestershire the proportions varied from 88.8% in Blaby and Hinckley and Bosworth to 87.1% in Charnwood. At the 15-19 years age band, the national percentage of population accessing NHS dental services in 24 months decreased to 70.6%. Two districts in Leicestershire had an access percentage lower than the national average, these were Charnwood (57.8%) and Oadby and Wigston (60.2%). Harborough had the highest percentage out of all Leicestershire districts of 88.0%.<sup>14</sup>

#### **2.4.3. Small area geographies in Leicestershire**

The variation in the percentage of the population accessing NHS dental services in 24

months by quinary age bands between 2014/15 to 2015/16 is presented by Middle Super Output Area (MSOA) in the corresponding Tableau dashboard, available here: [https://public.tableau.com/profile/r.i.team.leicestershire.county.council#!/vizhome/AccessandActivity201415\\_201516NHSCoicesv1\\_0/AccessActivityLA?publish=yes](https://public.tableau.com/profile/r.i.team.leicestershire.county.council#!/vizhome/AccessandActivity201415_201516NHSCoicesv1_0/AccessActivityLA?publish=yes)<sup>14</sup>

## **2.5. NHS dental activity**

NHS dental treatment is free for all children under 18, or under 19 and in full-time education. Pregnant women or those who have had a baby in the previous 12 months are also exempt from charges.

NHS dental charges are divided into patient charge bands depending on the level and complexity of treatment provided. Patient charge bands are associated with a Course of Treatment (CoT) as stated in Part 5 Treatment Category of the FP17. There are three standard charge bands for all NHS dental treatments:

- Band 1 course of treatment: covers an examination, diagnosis (including X-rays), advice on how to prevent future problems, a scale and polish if needed, and application of fluoride varnish or fissure sealant.
- Band 2 course of treatment: covers everything listed in Band 1 above, plus any further treatment such as fillings, root canal work or removal of teeth.
- Band 3 course of treatment: covers everything listed in Bands 1 and 2 above, plus crowns, dentures and bridges.
- Urgent care is a separate Band 1 category.

### **2.5.1. Leicestershire**

In Leicestershire, there were 140,851 CoT delivered to children in 2016/17. Of these CoTs, 77.7% (109,441) were Band 1 treatments indicating children are more likely to receive a general check-up than correctional treatments. CoT delivered in 2016/17 equated to 202,177 Units of Dental Activity (UDA) in children, 45 fewer than the previous year.<sup>1213</sup>

Aside from examinations, fluoride varnish was the most common Band 1 treatment provided to children, with 51,030 CoTs delivered. This represents a 32.2% increase (38,595) from 2015/16. Aside from examinations, the most common Band 2 treatment provided to children was permanent fillings and sealant restorations with 21,748 CoTs delivered. This represents a 3.2% decrease (22,468) from 2015/16. Other treatment accounted for the most common Band 3 treatment for children in Leicestershire.<sup>1213</sup>

### **2.5.2. Districts in Leicestershire**

The number of FP17s associated within each charge band has been calculated as a proportion of the total number of FP17s, by each district in Leicestershire, between 2014/15 to 2015/16. Districts have been assigned based on patient residence recorded on the FP17. A child has been defined as aged under 18 at the time of acceptance. Please note, activity does not reflect the unique numbers of patients as a patient can be counted more than once if, for example, over the analysed period they have attended different contacts.<sup>14</sup>

Between 2014/15 to 2015/16, nationally 70.3% of CoTs in children were Band 1 treatments. In Leicestershire, all districts had a higher percentage than the national percentage, ranging from 72.7% in Oadby and Wigston to 80.9% in Melton. Nationally nearly a quarter (24.5%) of all CoTs in children were due to Band 2 treatments. In Leicestershire, all districts had a lower percentage than the national average, ranging from 15.9% in Melton to 22.7% in Oadby and Wigston. Band 3 treatments in children accounted for 0.6% of all CoTs nationally. In Leicestershire, all districts had a lower percentage compared to national, ranging from 0.3% in Melton to 0.6% in Harborough. Nationally, 4.4% of CoTs in children were Urgent treatments. In Leicestershire, all districts had a lower percentage compared to the national percentage, ranging from 2.8% in Hinckley and Bosworth and North West Leicestershire to 4.0% in Oadby and Wigston.<sup>14</sup>

The treatments provided as recorded on FP17s have been examined at a district level in Leicestershire. Key treatments with relevance to dental public health have been selected for this analysis. The data shows fluoride varnish was the most common treatment provided to children, with a third (33.6%) of FP17 claims nationally including this treatment. In Leicestershire, two districts had a higher percentage than the national for fluoride varnish treatment, these are North West Leicestershire (41.2%) and Hinckley and Bosworth (34.3%). Oadby and Wigston had the smallest percentage of all Leicestershire districts with only a quarter (25.5%) of FP17 claims including this treatment.<sup>14</sup>

The second most common treatment provided to children nationally was extractions with 4.6% of FP17 claims including this treatment nationally. In Leicestershire, all districts had a lower percentage than the national average, ranging from 3.0% in Harborough to 3.8% in Hinckley and Bosworth.<sup>14</sup>

### **2.5.3. Small area geographies in Leicestershire**

The variation in the percentage of FP17s by patient charge band and the percentage of FP17s by treatment between 2014/15 to 2015/16 at MSOA geography is presented in the corresponding Tableau dashboard, available here:

[https://public.tableau.com/profile/r.i.team.leicestershire.county.council#!/vizhome/AccessandActivity201415\\_201516NHSChoicesv1\\_0/AccessActivityLA?publish=yes](https://public.tableau.com/profile/r.i.team.leicestershire.county.council#!/vizhome/AccessandActivity201415_201516NHSChoicesv1_0/AccessActivityLA?publish=yes)<sup>14</sup>

## **2.6. Inpatient admissions for tooth extraction**

The proportion of children aged 0-19 years having an inpatient admission for tooth extraction was 0.2% for North West Leicestershire and 0.1% for Hinckley & Bosworth, Melton and Oadby and Wigston in 2015/16. This is lower than the East Midlands value of 0.3% and England value of 0.5%. Data is not available for other Leicestershire districts as figures have been suppressed due to disclosure control.<sup>15</sup> Please be aware that the inpatient admissions examined is not a complete picture of demand due to coding issues as community extractions are not included.

## **3. How does this impact?**

Despite being largely preventable, dental disease places significant costs on the NHS. In 2015 the average cost of an episode of tooth extraction in hospital for a child was £836, and in 2015/16 tooth extractions in children aged 0-19 years in England cost approximately £50.5 million. The majority of these were for tooth decay.<sup>16</sup>

Targeted childhood settings such as nursery and school settings can provide a suitable supportive environment for children to take part in a supervised tooth brushing programme, teaching them to brush their teeth from a young age and encouraging support for home brushing. PHE estimates that after 5 years, the Return on Investment (ROI) for targeted supervised tooth brushing is £3.06 for every £1 spent. After 10 years, this increases to £3.66 for every £1 spent. After 5 years, targeted supervised tooth brushing can result in an extra 2,666 school days gained per 5,000 children.<sup>16</sup>

Targeted and timely provision of free toothbrushes and toothpaste by postal delivery can encourage parents to adopt good oral health practices and start tooth brushing as soon as the first teeth erupt. PHE estimates that after 5 years, the ROI for every £1 spent is £1.03. After 10 years, this increases to £1.54. After 5 years, the provision of toothbrushes by post can result in 1,025 school days gained per 5,000 children. Targeted provision of toothbrushes and paste by post and by health visitors increases the cost effectiveness of the scheme. After 5 years, the ROI for every £1 spent is £4.89, increasing to £7.34 after 10 years. Combining postal provision of toothbrushes with support from health visitors can result in 2,566 days school days gained per 5,000 children after 5 years.<sup>16</sup>

PHE have found strong evidence of effectiveness of targeted community fluoride varnish programmes. The programmes involve the application of fluoride varnish to children's teeth, which is carried out by dental personnel outside dental practices. PHE estimates that after 5

years, the return on investment for this intervention is £2.29 for every £1 spent and £2.74 after 10 years for every £1 spent. After 5 years, targeted community fluoride varnish programmes can result in an extra 3,049 school days gained per 5,000 children.<sup>16</sup>

#### 4. Policy and Guidance

The government has made a commitment to oral health and dentistry with a drive to:

- Improve the oral health of the population, particularly children
- Introduce a new NHS primary dental care contract
- Increase access to primary care dental services
- Reduce dental extractions under general anaesthetic

Public Health England's ambition is that every child grows up free from tooth decay as part of having the 'best start in life'

The Public Health Outcomes Framework<sup>1</sup> included 'tooth decay in five year old children' as an outcome indicator. The NHS Outcomes Framework<sup>17</sup> includes indicators related to patient's experiences of dental health services and access to dental health services

The NICE Public health Guidance 55 (October 2014) 'Oral Health: Local Authorities and partners'<sup>18</sup> include recommendations:

- *Prioritising* oral health as a key health & wellbeing priority, *assessing* through an oral health needs assessment and *promoting* oral health e.g. ensuring that all public service environments promote oral health such as free drinking water, sugar free foods, encouraging and supporting breast feeding.
- *Giving information and advice* on oral health – for examples include oral health in all health and wellbeing and disease prevention policies for children and young people such as nutrition and breast feeding and weaning practices and obesity.
- *Oral health interventions in early years* – e.g. tooth brushing, health weaning. Ensure that all frontline staff can help parents/ carers understand how good oral health can contribute to children's overall health and wellbeing
- *Oral health interventions in primary schools* – promote a 'whole school approach to oral health' by ensuring that oral health is included in school policies and procedures, providing plain drinking water

Delivering Better Oral Health: An evidence based toolkit for prevention: 3<sup>rd</sup> Edition (2017)<sup>3</sup> summarises and provides guidance on:

- Prevention of caries in children age 0-6 years
- Prevention of caries in children aged from 7 years and young adults
- Prevention of periodontal disease
- Risk factor control
- Prevention of oral cancer
- Evidence based advice and professional intervention about smoking and other tobacco use
- Evidence based advice and professional intervention about alcohol and oral health
- Evidence based advice and professional intervention about healthy eating
- Advice and information on tooth brushing and fluoride

Reviews of Clinical effectiveness by NICE (PH55)<sup>18</sup> and PHE (Commissioning Better Oral Health for Children & Young People, 2014)<sup>19</sup> have found that the following programmes effectively reduced tooth decay in 5 year olds:

- Targeted supervised tooth brushing programme
- A targeted fluoride varnishing programme
- Water fluoridation provides a universal programme
- Targeted provision of tooth brushes and paste by post
- Targeted provision of tooth brushes and paste by health visitors

All interventions provide a good return on investment.

## **5. Current Services**

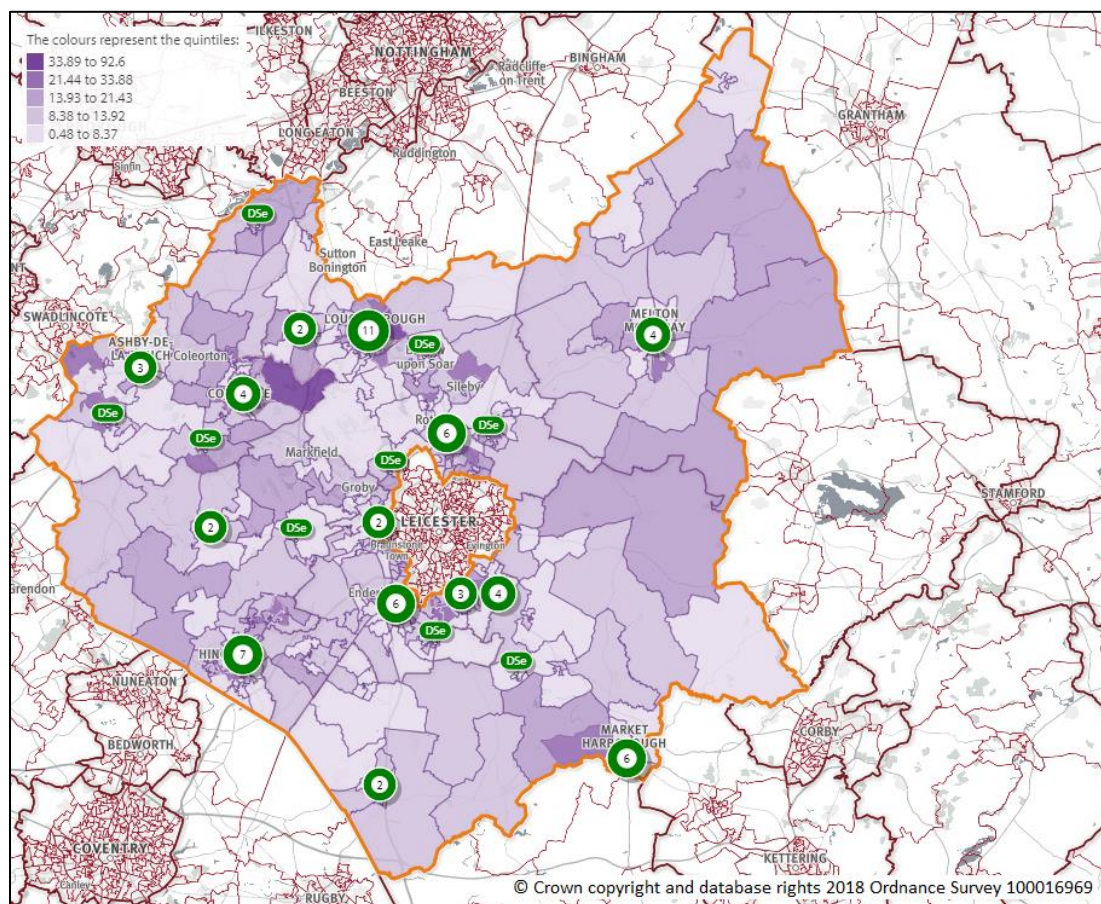
### **5.1. NHS England**

NHS England commissions all NHS Dental Services including General Dental Practice and Specialties including: Oral surgery and Oral Medicine, Orthodontics, Special care dentistry restorative dentistry and paediatric dentistry. Figure 10 shows the location of NHS dental



practices in Leicestershire, examined by Index of Multiple Deprivation 2015 national quintiles. The darker the colour the more deprived the area.

**Figure 10: Location of dental practices in Leicestershire by Index of Multiple Deprivation 2015 National Quintiles**



## 5.2. Leicestershire County Council

Leicestershire County Council’s Public Health currently commission 2 dental services:

- A Dental Epidemiological field work service to provide oral health epidemiological data to inform oral health programmes and NHS Dental services
- Oral Health Promotion service to increase awareness and knowledge around oral health promotion amongst the wider public health workforce, including dental practice staff, to ensure they are giving up to date and evidence based oral health messages

### **5.2.1. Oral Health Promotion Service**

The Oral Health Promotion Service also provides training in accordance to established protocol and standards for pre-school and school settings in supervised tooth brushing, to include those working towards or renewing their 'Leicestershire Healthy Tots Status'. In addition, training is provided to other childcare settings not currently engaged in Healthy Tots, targeting, as a priority those areas with higher levels of tooth decay. There is input to activities including children centre targeted parent groups such as 'Baby Beginnings' and to families participating in the Early Start Programme.

### **5.2.2. 0-19 Healthy Child Programme**

Oral Health has also been included as a 'local high impact area' in the delivery of the 0-19 Healthy Child Programme. In this context, Public Health nurses (Health Visitors and School Nurses) provide brief interventions, advice, and support for children, young people and their families on oral health including supporting parents to take their children to the dentist). The Healthy Together 0-19 Healthy Child Programme service have also developed an Oral Health pathway as part of its Standard Operating Guidance. This pathway conforms to Public Health England and NICE guidance. Public health nurses provide face to face oral health contact with children, young people, and parents to reinforce health promotion messages and check that advice is taken up including support for post dental extraction under general anaesthetic for children under 5. There is oral health information on the 3 Healthy Together websites including:

- Health for under 5's <https://healthforunder5s.co.uk/>
- Health For Kids <https://www.healthforkids.co.uk/>
- Health for Teens <https://www.healthforteens.co.uk/>

Oral Health is included as part of the Leicestershire Healthy Tots Programme (a healthy early years programme) – it features as part of the healthy eating core theme.

### **5.2.3. Fluoride Varnish Letters**

Each year, every general dental practice in Leicestershire, is sent a letter to encourage them to follow the Delivering Better Oral Health evidence based guidelines (2017)<sup>3</sup> on the advice and professional interventions that should be provided for all children and what should be provided for children at risk.

These guidelines advise that:

- All children over the age of 3 should have fluoride varnish applied to teeth twice a year.
- All children aged 0 to 6 years, and aged 6 years and above, giving concern (e.g. those likely to develop caries, those with special needs) should have fluoride varnish applied to teeth two or more times a year.

The letters provide each dental practice with the levels of fluoride varnishing being provided by their practice in comparison to other practices in Leicestershire. The Fluoride varnishing programme contributes towards improving the oral health of children by reducing tooth decay.

## 6. Unmet needs/Gaps

Many factors affecting oral health are also linked to deprivation. More deprived groups are more likely to engage in multiple unhealthy behaviours, have poorer oral health and are more likely to be hospitalised for dental health problems.<sup>20</sup> Consequently improving oral health in all children in proportion to their oral health need will contribute to reducing health inequalities.

Most areas in Leicestershire have seen a reduction in dental decay in 5 year olds, however Oadby and Wigston has seen an increase in decayed, missing or filled teeth. 22.3% of Leicestershire 5 year olds have experience of tooth decay, with 25% of five year olds and 31.4% of 12 year olds attending special support schools having tooth decay. 18.6% of 3 year olds in Leicestershire have some dental decay (more than the national average), which means that nearly 1 in 5 of our 3 year olds, and 1 in 4 of our 5 year olds have decayed, missing or filled teeth.

Whilst the average oral health of children in Leicestershire is similar to the England average, this still represents a substantial burden of oral ill health, with a significant impact on the health and wellbeing of these children and their families. 26% of children having extractions had missed days from school because of dental pain, with an average of 3 days of school missed due to dental problems. Two thirds (67%) of children reported pain and 38% had lost sleep due to pain. Tooth decay and dental pain can also affect eating and speech development.<sup>21</sup> As tooth decay is considered largely preventable, but with a substantial effect on a child's wellbeing, we need to continually strive to improve the oral health of the children of Leicestershire and reduce the level of decayed, missing and filled teeth in them. Increasing coverage of all child health programmes, whether oral health specific or more general, is an important part of this. This should follow the principle of proportionate universalism, where all children and parents are offered support and programmes to

improve children's oral health, with resources targeted at those with greater levels of need, and higher levels of tooth decay.

Anecdotally some young children in the East Midlands are turned away by dentists, being told that they will be seen when they are older. This is a missed opportunity, both for offering oral health promotion, and for reinforcing the message that dentists and dental check-ups are for all children from when their first tooth comes through. If parents are being refused an appointment in their attempts to get their child seen by a dentist, this may have a detrimental impact on their willingness to try again at a later stage, or at least wonder if their child is welcome at the dentist.

## **7. Recommendations**

Tooth decay in children is largely preventable, with the potential to substantially improve health and general wellbeing of children in Leicestershire. In light of this, the following recommendations are made:

- Utilise the principles of proportionate universalism to provide interventions and support to all children in Leicestershire, with a scale and intensity that is proportionate to the level of disadvantage and need, and in doing so working to reduce inequalities in oral health.
- Increase levels of breastfeeding, both initiation and continued breastfeeding throughout Leicestershire and encourage all dental practices to be breastfeeding friendly.
- Continued support for a campaign to increase use of sippy cups or open cups, to reduce prolonged bottle use to reduce the incidence of incisor caries.
- Ensure that all children in Leicestershire are able to access a 'Dental Check by One' as per The British Society of Paediatric Dentistry campaign.
- Continued development of and investment in oral health promotion services such as: supervised toothbrushing, oral health aspects of the 0-19 Healthy Child programme, and oral health promotion in other relevant services.
- Increase number of Early Years settings that provide a supervised toothbrushing programme, so that more children in Leicestershire have access to this programme. Early Years settings in areas with higher levels of substantial plaque, sepsis and tooth decay should be targeted first, with a longer term aim to increase coverage of the supervised toothbrushing programme throughout the County.

- Continue to send a letter to every general dental practice in Leicestershire, encouraging them to follow the Delivering Better Oral Health evidence based guidelines (2017)<sup>3</sup> on the advice and professional interventions that should be provided for all children and what should be provided for children at risk including the application of fluoride varnish.
- Increase support to special support schools to reduce the levels of tooth decay in children attending these schools in Leicestershire.
- Focus on strategies that increase the levels of fluoride to protect the oral health for children, this includes fluoride varnish, use of fluoride toothpaste and exploring the barriers and opportunities to fluoridate the water supply

## GLOSSARY OF TERMS

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CCG	Clinical Commissioning Group
CoT	Courses of Treatment
d3mft	Decayed, missing or filled teeth
JSNA	Joint Strategic Needs Assessment
MSOA	Middle Super Output Area
NHS	National Health Service
NICE	National Institute for Health and Care Excellence
ROI	Return on Investment
PHE	Public Health England
UDA	Units of Dental Activity

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