



# 5: Preventive behaviour and risks to oral health - a report from the Adult Dental Health Survey 2009

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# Introduction

This report, is based on information collected through the interviewer-administered questionnaire and the clinical dental examination of the Adult Dental Health Survey (ADHS) 2009. The survey was carried out in England, Wales and Northern Ireland only.

Preventive behaviours, risks to oral health, and advice received from dental health professionals are considered and are discussed in relation to clinical oral health indicators such as plaque and calculus. Bacterial plaque is associated with both dental decay and periodontal disease and its removal is a key preventive behaviour for both diseases<sup>1</sup>. Likewise, the presence of calculus, a form of hardened plaque, while not in itself an indicator of periodontal disease, is regarded as an important risk factor since it can impair effective cleaning and plaque removal.

More specifically, the questionnaire recorded the frequency of tooth cleaning, the use of tooth cleaning methods other than a normal tooth brush and toothpaste and the fluoride content of toothpaste used. Identifying how often adults say they clean their teeth and the products they use is important, as, while they do not provide direct information about how effectively people clean their teeth, taken together, they give an indication of motivation towards dental hygiene.

In addition, questions were also included on the questionnaire to measure smoking behaviour, sugar consumption and recall of advice given by dental health professionals on how to look after teeth and gums.

All of the Tables are to be found at the back of the report.

Full background and methodological details for the survey, including response and clinical examination conversion rates can be found in *Foundation report: Adult Dental Health Survey 2009*. A glossary of all clinical terms can also be found in this report.

## Key findings

- Seventy-five per cent of adults said that they cleaned their teeth at least twice a day and a further 23 per cent of adults said that they cleaned their teeth once a day. Only 2 per cent of adults said that they cleaned their teeth less than once a day and 1 per cent said that they never cleaned their teeth.
- The majority of dentate adults reported using toothpaste with a high (1,350 to 1,500 parts per million) level of fluoride (76 per cent) and a further 18 per cent said that they used a brand with a medium (1,000 to 1,350 parts per million) level of fluoride.
- Overall 78 per cent of dentate adults said that they had been given advice by a dentist or a member of the dental team on cleaning their teeth and/or gums.
- Twenty-two per cent of all adults said that they currently smoked. A small minority of adults (9 per cent) reported having been given advice on quitting smoking in the last two years.
- Two-thirds (66 per cent) of dentate adults had visible plaque (bacterial material which collects on teeth and/or other solid oral structures such as dentures) on at least one tooth. The average number of teeth with plaque was 6.0 teeth and given that the average number of teeth was 25.7, represented just under a quarter (23 per cent) of all teeth.
- A similar proportion (68 per cent) of dentate adults had calculus present in at least one sextant of the mouth; on average 1.8 sextants were affected.

# 5.1 Oral hygiene

## Introduction

Good oral hygiene helps prevent dental problems such as the accumulation of plaque and calculus, which contribute to the development of gum disease and tooth decay<sup>1</sup>. Daily preventive care including brushing is nowadays seen as essential to maintain good oral health and will help stop dental problems before they develop. Evidence based guidance from the Department of Health recommends that people brush their teeth twice a day with a fluoride toothpaste<sup>2</sup>. Supported by more than half a century of research, the benefits of fluoride toothpaste are firmly established and systematic reviews have concluded that there is clear evidence that fluoride toothpastes are effective in preventing caries<sup>3 4</sup>. Fluoride is known to strengthen tooth enamel, making it more resistant to tooth decay, and reduce the amount of acid produced by bacterial plaque on teeth<sup>5</sup>.

### 5.1.1 Frequency of tooth brushing

Previous surveys have reported that the majority of dentate adults claim to clean their teeth twice a day<sup>6</sup> and the present survey confirmed this. Seventy-five per cent of adults said that they cleaned their teeth at least twice a day and a further 23 per cent of adults said that they cleaned their teeth once a day. Only 2 per cent of adults said that they cleaned their teeth less than once a day and 1 per cent said that they never cleaned their teeth. The frequency of tooth cleaning was related to age but not in a linear way; adults aged 35 to 44 years were the group most likely to say that they cleaned their teeth twice a day or more often (80 per cent), compared with 72 per cent in the youngest age group and 70 per cent in people aged 75-84 years, and just 63 per cent in those aged 85 and over. There was a corresponding rise with age in the proportion of adults who claimed to clean their teeth once a day.

*Table 5.1.1*

Frequency of tooth cleaning also varied by sex, 82 per cent of women said that they cleaned their teeth twice a day or more compared with 67 per cent of men. Tooth cleaning frequency did not vary significantly between countries or across English Strategic Health Authorities (SHAs). Within socio-economic classification of the household, differences were also observed with 79 per cent of adults from managerial and professional occupation households reporting that they cleaned their teeth twice a day or more compared with 68 per cent of adults from routine and manual occupation households.

*Table 5.1.1*

Tooth cleaning frequency was also related to reason for dental attendance; 80 per cent of adults who said that they went to the dentist for a regular check-up said that they cleaned their teeth at least twice a day compared with 65 per cent of those adults who reported that they only visited a dentist when they have trouble with their teeth. This finding is consistent with the expectation that people who make regular visits to the dentist are more motivated to maintain good dental health. Similarly, 76 per cent of adults with only natural teeth reported cleaning their teeth at least twice a day. This compares with 67 per cent of adults who had some natural teeth as well as a partial denture.

*Table 5.1.1*

An improvement in the reported frequency of tooth cleaning has been observed since the question was first included in the 1988 ADHS. Table 5.1.2 shows that between 1988 and 2009, the proportion of adults in England who said that they cleaned their teeth twice a day or more increased by 8 percentage points from 67 to 75 per cent. Increases of this size have also been observed in Wales and Northern Ireland, although the rate of improvement appears to have levelled off somewhat.

*Table 5.1.2*

### 5.1.2 Fluoride toothpaste usage

There is clear evidence of a dose-related response between fluoride levels in toothpaste and its efficacy in preventing dental decay; levels below 500 parts per million have no efficacy in preventing decay<sup>3</sup>. The Oral Health Toolkit<sup>2</sup> recommends that adults brush twice a day with toothpaste containing at least 1,350 parts per million fluoride. To establish if dentate adults were using toothpastes with adequate levels of fluoride, all dentate adults who brushed their teeth were asked which brand of toothpaste they used most often – the first time this information was included in the survey series. The toothpaste brand names provided were coded by interviewers using a computed-assisted coding frame which was based on information put together for the Oral Health Toolkit. This coding frame classifies over-the-counter toothpastes by fluoride concentration into three levels, high (1,350 to 1,500 parts per million), medium (1,000 to 1,350 parts per million) and low (550 parts per million or less). Thirteen per cent of people did not give enough information for the interviewer to be able to code the fluoride concentration, and these people have been excluded from Table 5.1.3.

The majority of dentate adults reported using toothpaste with a high level of fluoride (76 per cent) and a further 18 per cent said that they used a brand with a medium level of fluoride. Six per cent of adults were using a brand of toothpaste with a low level of fluoride. The level of fluoride in fluoridated toothpaste used by dentate adults in the survey varied by age with older adults more likely than younger adults to report using brands with lower levels of fluoride (or no fluoride at all).

*Table 5.1.3*

### 5.1.3 Use of methods other than ordinary toothpaste and brush

Many studies show that in addition to systematic brushing twice a day<sup>7</sup>, periodontal health may also benefit from the use of electric toothbrushes<sup>8</sup>, interdental cleaning by floss and/or interdental brushes<sup>9</sup>. Dentate adults who said that they cleaned their teeth were therefore asked whether, in addition to a manual toothbrush and toothpaste, they used any other methods of maintaining oral hygiene. The use of other products was reported by 58 per cent of dentate adults, with mouthwash (31 per cent), electric toothbrushes (26 per cent), and dental floss (21 per cent) the most frequently mentioned.

*Table 5.1.4*

Table 5.1.5 shows that use of other products varied by age with additional methods being most popular among adults aged 35 to 64 years; over three-fifths of adults in this age range reported using products other than a normal toothbrush and toothpaste. Adults aged 16 to 24 and adults aged 85 years and above were the least likely to use other products (46 and 34 per cent respectively). Differences were also observed by sex (53 per cent of men compared

with 61 per cent of women said that they used something other than a normal toothbrush and toothpaste). Use also varied by country with 59 per cent of adults in England reporting that they use additional products for dental hygiene whereas only 46 and 48 per cent of adults in Wales and Northern Ireland did. In the English SHAs use of additional methods was most common in South Central (66 per cent) and lowest in North East SHA (51 per cent). Variations were also observed in terms of socio-economic classification of the household (66 per cent of adults from managerial and professional occupation households compared with only 49 per cent of adults from routine or manual occupation households).

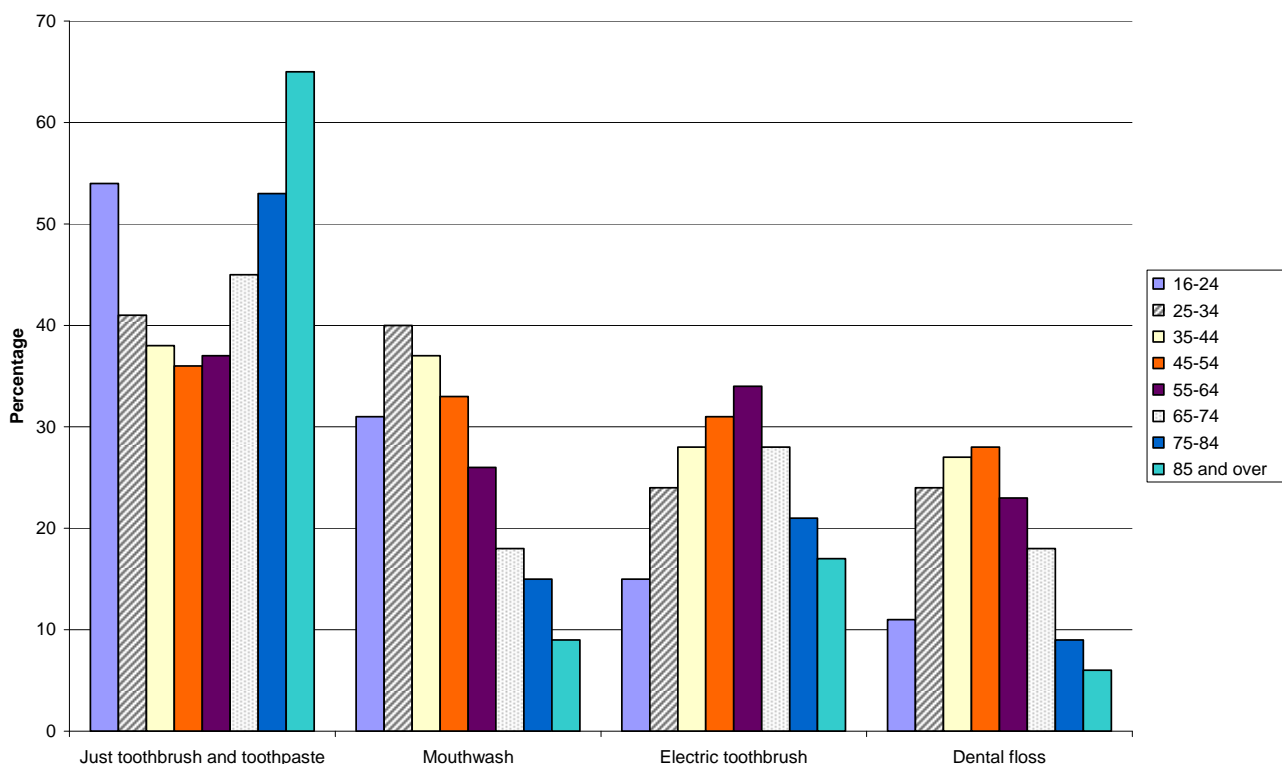
Finally the use of additional dental hygiene products was associated with reason for dental attendance and dental status. Sixty-three per cent of adults who reported visiting a dentist for regular check-ups said that they used additional tooth cleaning methods compared with 47 per cent of adults who said that they went to the dentist only when they had trouble with their teeth. Likewise, adults who only had natural teeth (59 per cent) were more likely to say that they used an additional method than those who had natural teeth as well as partial dentures (51 per cent).

Table 5.1.5

Table 5.1.5 also demonstrates the pattern of use of the three most popular additional cleaning methods reported by dentate adults. The age related pattern (decreasing use with advancing age) was observed in mouthwash, dental floss and electric toothbrush use, however the age related decline in the use of electric toothbrushes was less pronounced than those other methods. For example, 18 per cent of adults aged 65 to 74 years reported using mouthwash and 18 per cent of adults in this age group reported using dental floss compared with 28 per cent reporting that they used an electric toothbrush.

Figure 5.1.1, Table 5.1.5

Figure 5.1.1 The use of dental hygiene products by age, 2009



Use of an electric toothbrush was also most popular in South Central SHA, with 39 per cent of dentate adults using them, as was dental floss use (alongside London and the East of England) with 27 per cent of adults in these two SHAs using this product.

Mouthwash was the most popular additional cleaning method in all three countries (and in almost all SHAs), in both men and women and among all adults aged 16 to 54 years. This pattern was also observed among adults living in intermediate and routine and manual occupation households and with adults who attended the dentist for reasons other than a usual check-up. Mouthwash was also the most popular additional method amongst those who reported that they brushed their teeth once a day and less than once a day (26 and 23 per cent respectively), and was slightly more popular than electric tooth brush use with adults who brushed their teeth twice a day (33 per cent). These patterns may suggest that there are differences across groups of people in how they perceive the efficacy of alternative dental hygiene products, with a clear preference for mouthwash in some groups.

*Table 5.1.5*

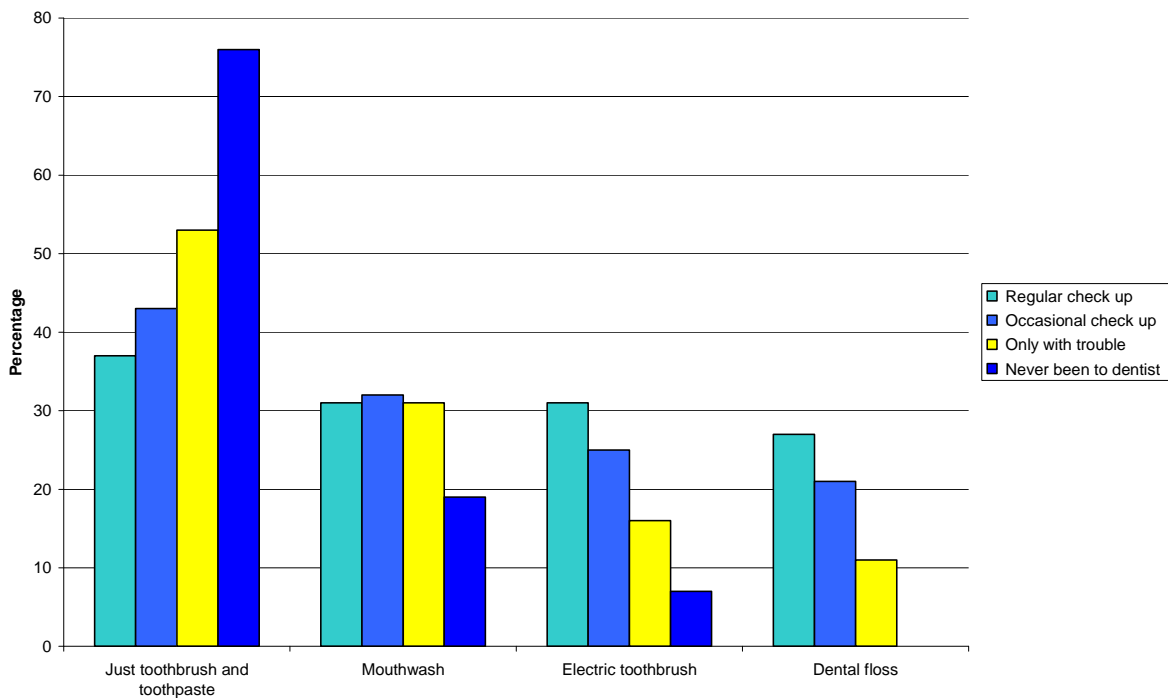
Almost a quarter of adults aged 25 to 64 years reported that they used floss, however among younger (16-24 years) and older adults (65 years and over) flossing was less popular. Women were much more likely to report using floss than men, 26 per cent compared with 16 per cent, the only difference in use of additional cleaning methods noted between the sexes. A greater proportion of adults from managerial and professional occupation households than adults from routine or manual occupation households used floss, 28 per cent compared with 13 per cent. Flossing was also more popular with adults who go to the dentist for regular check ups (27 per cent) than adults who attend only when they have dental trouble (11 per cent).

Electric toothbrush usage was lowest among the youngest (16 to 24 years) and oldest (85 years and above) dentate adults (15 and 17 per cent respectively), but was highest among adults aged 55 to 64 years (34 per cent). Like dental floss, electric toothbrushes were also more likely to be used by adults from managerial and professional occupation households (34 per cent) than those from routine and manual occupation households (18 per cent) and those who reported visiting the dentist for regular check-ups (31 per cent) compared with those who only attended when they had trouble with their teeth (16 per cent). Twenty-seven per cent of those with only natural teeth reported using an electric toothbrush compared with 19 per cent of those with natural teeth and partial dentures.

Reported use of an additional method of tooth cleaning was also associated with reported tooth cleaning frequency. A quarter of those who said that they brushed their teeth twice a day or more also said that they used dental floss (25 per cent) in comparison with 13 per cent of those brushing once a day, and only 5 per cent of those brushing less than once a day. The percentages for an electric toothbrush were 28 per cent, 21 per cent, and 12 per cent respectively.

*Figure 5.1.2, Table 5.1.5*

**Figure 5.1.2 The use of dental hygiene products by reason for dental attendance, 2009**



Substantial increases in the use of additional products have been observed since this question was first included on the ADHS in 1978; from 22 per cent to 59 per cent in England, 15 per cent to 46 per cent in Wales (although there was a small decline between 1998 and 2009 in Wales), and 23 per cent to 48 per cent in Northern Ireland (between 1988 and 2009). Over the same period increases were also observed in the use of dental floss and mouthwash, however dental floss use has fallen between 1998 and 2009 in England, Wales and Northern Ireland.

*Table 5.1.6*

### 5.1.4 Advice and information about oral hygiene

Dentists and other dental practice staff play an important role in encouraging good dental hygiene behaviour among their patients and the Oral Health Tool Kit<sup>2</sup> emphasises the importance of providing routine advice on healthy eating, and smoking cessation.

All adults who took part in the survey were asked whether they had ever been given advice by a dentist or a member of the dental team on cleaning their teeth and/or gums. Table 5.1.7 shows that overall, 78 per cent responded that they had been given this type of advice. There was some variation between age groups, approximately four-fifths of adults between 25 and 64 years said they had received advice on cleaning their teeth, however smaller proportions of younger adults (aged 16 to 24 years) and those aged above 65 years said that they had received this advice. There was no difference between the sexes with 78 per cent

of men and women reporting that they had been given this advice. Seventy-four per cent of adults in Wales said that they had received this advice compared with 77 per cent in Northern Ireland and 78 per cent in England, although this difference was not significant. Within the SHAs there were some significant differences, with 85 per cent of adults in South Central and South East Coast SHAs reporting that they had been given this advice compared with 68 per cent in the West Midlands, the lowest across all SHAs.

Adults from routine and manual occupation households were less likely to report ever having been given advice about cleaning their teeth and/or gums than adults from intermediate occupation and managerial and professional occupation households, 72 per cent compared with 77 and 84 per cent respectively. Recalling this advice also varied by usual reason for dental attendance, 82 per cent of adults who attended for a regular check-up said they had been given advice, compared with 78 per cent of adults who attended for an occasional check-up, and 70 per cent of adults who attended only when they were having trouble with their teeth or gums. Similarly, a greater proportion of adults with natural teeth only recalled receiving advice on cleaning their teeth (79 per cent) than adults who had some natural teeth and a partial denture (68 per cent).

*Table 5.1.7*

In the 1998 Adult Dental Health Survey all dentate adults were also asked about advice they might have received from a dentist or a member of a dental team on how to care for their oral health. Specifically, two questions were included in the 1998 survey to identify whether this advice was given; the first asked if the respondent had ever been given a demonstration of how to clean their teeth; the second asked if advice on caring for their gums had been given. In 1998 these data were presented for each question as well as in a composite measure of the two questions and although not directly comparable with the data from the present survey, some comparisons can be made. Table 5.1.8 presents data on the reported dental hygiene advice for England for 1998 and 2009. It is clear that recalled advice on oral hygiene from dentists and members of the dental team has risen from 63 per cent in 1998 to 78 per cent in 2009, however it is important to view this data with caution given the measurement differences between 1998 and 2009.

*Table 5.1.8*

## 5.2 Risks to dental health

### 5.2.1 Smoking behaviour

For the first time in the ADHS series questions on smoking behaviour were included and asked of all adults, including young adults aged 16 to 18 years. These questions were included as there is clear evidence that smoking is associated with poor periodontal health<sup>10</sup> and smoking cessation guidelines recommend that all health professionals, including members of the dental team, should ask about smoking annually and advise smokers to quit<sup>2 11</sup>.

The smoking questions used were the Government surveys harmonised questions that are included on many other government sponsored health surveys; all respondents, whether dentate or edentate, were asked whether they currently smoked and if not, whether they had ever smoked. Table 5.2.1 shows that 22 per cent of all adults said that they currently smoked and marginally more edentate adults said they were smokers compared with those dentate adults, 24 per cent compared with 22 per cent.

*Table 5.2.1*

Among dentate adults smoking prevalence was highest in the younger age groups with 25 per cent or more of adults aged 16 to 44 years saying that they were current smokers; this compares with approximately 10 per cent of adults over 65 years of age. Twenty-four per cent of men said they were current smokers compared with 21 per cent of women. Smoking prevalence was also associated with socio-economic classification of the household; 30 per cent of adults from routine and manual occupation households said they were smokers compared with 22 per cent of adults from intermediate occupation households and 16 per cent from managerial and professional occupation households.

*Table 5.2.2*

### 5.2.2 Smoking cessation advice

In order to assess whether dental health teams are regularly contributing to smoking cessation programmes, all dentate adults who had visited a dentist in the two years prior to being interviewed were asked if any member of the dental team had given them advice on giving up smoking at their most recent visit. A small minority of adults (9 per cent) reported having been given advice on quitting smoking, with 35 per cent of adults stating they had never smoked. While the remaining 57 per cent said that they had not received any advice on smoking cessation, it is likely that these individuals will include ex-smokers (and therefore do not need any advice), and individuals who the dental team already know are not (and may never have been) smokers.

*Table 5.2.3*

It is also important for adults who are edentate to receive smoking cessation advice, given the association between smoking and oral cancer<sup>12</sup>. All edentate adults who had been to the dentist in the two years prior to the interview were also asked if they had received any advice on stopping smoking from the dentist. As for dentate adults a small proportion of adults (7 per cent) said that they had received smoking cessation advice, the vast majority (72 per

cent) of adults with no teeth were not given any advice on smoking cessation, 22 per cent said that they never smoked. The number of adults who were asked this question was very small and therefore caution should be taken when considering these estimates nevertheless they do mirror the estimates for those dentate adults and may well reflect a reluctance amongst members of the dental team to give this sort of advice.

Table 5.2.3

### 5.2.3 Sugar consumption

The evidence that frequency of sugar consumption is related to dental caries is unequivocal<sup>13</sup> and for the first time in the survey series questions were included on the current survey to obtain a measure of sugar consumption in the general population. It is important to note however, that measuring dietary consumption including sugar intake in a cross sectional survey is particularly difficult. Consequently, the data on sugar consumption should be considered with caution as data that provides a proxy rather than a definitive indication of sugar consumption in the general population. Three questions taken from the Heath Survey for England were included measuring the average frequency (ranging from rarely/never to six or more times a week) with which a respondent consumed:

1. Cakes - cakes, biscuits, puddings or pastries;
2. Sweets - sweets or chocolates; and
3. Fizzy drinks - fizzy drinks, fruit juice, or soft drinks like squash (excluding diet or sugar-free drinks)<sup>14</sup>.

In order to categorise respondents into high or low sugar users, answers given to the three questions were used to derive composite variables. Adults who answered that they consumed a serving of *Cakes*, or *Sweets*, or *Fizzy Drinks* six or more times a week were categorised as high sugar consumers while all those who did not respond six or more times to any of the three questions were categorised as low sugar users. It is possible that a respondent who was categorised as a low sugar consumer might have been consuming more of these high sugar foods than some individuals who were included in the high sugar category; as a proxy measure consuming any of these six or more times a week is indicative of a strong disposition towards being a high sugar consumer.

Table 5.2.4 shows that overall 50 per cent of dentate adults were consuming at least one of the three types of food six or more times a week and were therefore, within the definition adopted, considered to be high sugar consumers. Sugar consumption varied by age and was highest among adults aged 85 and above (65 per cent) and lowest among those aged 45 to 54 years (42 per cent). A significantly larger proportion of men were classified as high sugar consumers (53 per cent) compared with women (46 per cent). In addition, sugar consumption also varied by reason for dental attendance; 53 per cent of adults who only went to the dentists when they were having trouble were classified as high sugar consumers, compared with 49 per cent of adults who attended for a regular check-up, and 47 per cent of those who attended for an occasional check-up.

Table 5.2.4

In addition to the questions on sugar consumption, all dentate adults were asked if they had ever (over the whole of their adult life) been questioned by a dentist about the types of food

and drinks they consumed as well as if they had ever been given advice about their diet by a dentist. Dentists are expected to provide routine advice about diet to their patients to help promote good oral and general health. Nearly two-thirds of respondents, 64 per cent, said that they had never been asked about their diet and although the remaining 36 per cent of adults said that they had been asked about their diet, only 27 per cent reported that they had been given advice about their diet. While it is not possible to say whether adults who had not received dietary advice actually needed advice, it would seem that dental teams are less likely to discuss diet than they are oral hygiene measures.

*Table 5.2.5*

## 5.2.4 Visible plaque and calculus

During the dental examination component of the survey, examiners recorded the presence of plaque and calculus both of which act as proxy measures of oral cleanliness and the effectiveness of oral hygiene. Alongside the number of people who are affected by plaque it is useful to relate the prevalence of plaque to the number of teeth present as those with few remaining natural teeth have by definition less chance of having plaque. The data relating to plaque are presented in a number of ways:

- The proportion of dentate adults with at least one tooth affected
- The mean number of teeth affected
- The proportion of teeth affected averaged over the population

In contrast to the measurement of plaque, the presence of calculus was recorded for each sextant of the mouth rather than each tooth; this means that it is not possible to present the mean proportion of teeth with calculus.

The measures of plaque and calculus present particular difficulties for the examiners as both are often difficult to see against similar coloured tooth surfaces. In addition, the physical conditions in which the examinations were conducted (in respondents own homes with variable lighting) also presented obstacles to the accurate coding of plaque and calculus, consequently there can be wide variation between examiners on these measures. Finally, there were a relatively small number of examiners in each individual region and country so variations in the results for adults from different regions and countries should be interpreted with caution for the measures reported.

Dental plaque is a bacterial material which collects on teeth and/or other solid oral structures such as dentures. The bacteria within plaque have been implicated in pathogenesis of both dental caries and periodontal disease<sup>1</sup>; however it is relatively easy for an individual to remove most plaque by cleaning their teeth with a toothbrush and other cleaning aids. Good plaque control is therefore an essential component for the prevention and management of periodontal disease and tooth decay. Even moderate amounts of plaque can be difficult to see on the tooth with the naked eye so where plaque has been recorded in this survey it generally indicates a substantial accumulation. Visible deposits of plaque take some time to develop (at least 24 hours) and as most people brush their teeth once or twice a day, for plaque to have been recorded in this survey it is likely to be at points in the mouth where tooth cleaning has been ineffective on a fairly consistent basis.

Respondents were asked if they wished to clean their teeth prior to the oral examination. Few (4 per cent) chose to do so, although some may have cleaned their teeth before the examiners arrived. Table 1 below shows that 66 per cent of dentate adults had visible plaque on at least one tooth (compared with 62 per cent on adults who opted to brush their teeth just before the examination, table not shown). The average number of teeth with plaque was 6.0 teeth and given that the average number of teeth was 25.7, represented just under a quarter (23 per cent) of all teeth. The absence of recorded plaque in 34 per cent of the dentate population does not indicate that there was no plaque present in these cases, rather that there was not enough for it to be visible to the naked eye. Nevertheless the absence of visible plaque suggests that oral hygiene is at least reasonably effective.

Among those dentate adults with visible plaque, the average number of teeth with plaque was 9.0 teeth and given that the average number of teeth was 25.6, represented just over a third (35 per cent) of all teeth.

Table 1

**Table 1 Presence of visible plaque, 2009**

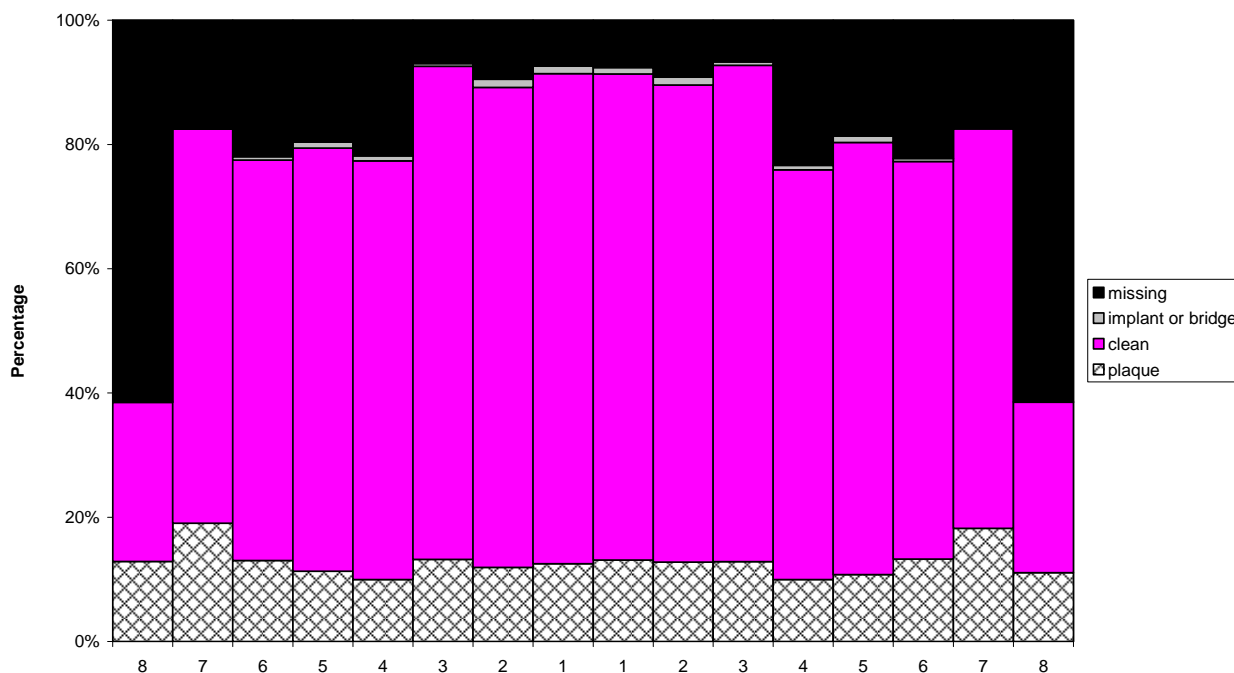
<i>England, Wales, Northern Ireland: 2009</i>	
<b>Dentate adults</b>	
<b>Amongst all dentate adults</b>	
Percentage with visible plaque	66
Mean number of teeth with visible plaque	6.0
Mean number of teeth	25.7
Mean percentage of teeth with visible plaque	23
<i>Unweighted base</i>	6,470
<i>Weighted base (000s)</i>	42,918
<b>Amongst those with visible plaque</b>	
Mean number of teeth with visible plaque	9.0
Mean number of teeth	25.6
Mean percentage of teeth with visible plaque	35
<i>Unweighted base</i>	4,220
<i>Weighted base (000s)</i>	28,430

The position of the teeth in the mouth, their function and their shape can result in differential predisposition to plaque and periodontal disease and as such the presence of plaque was recorded for each permanent tooth. For dentate adults the lower incisors were the most plaque prone teeth; between 26 and 45 per cent had visible plaque on the lower central and lateral incisors. In the upper jaw, the second molar in each arch was the most plaque prone tooth with around 18 per cent of dentate adults having visible plaque on these teeth. Clearly the lower arches are less well cleaned than the upper arches, and it is likely to be the lower anteriors of the central and lateral incisors that will have most visible plaque.

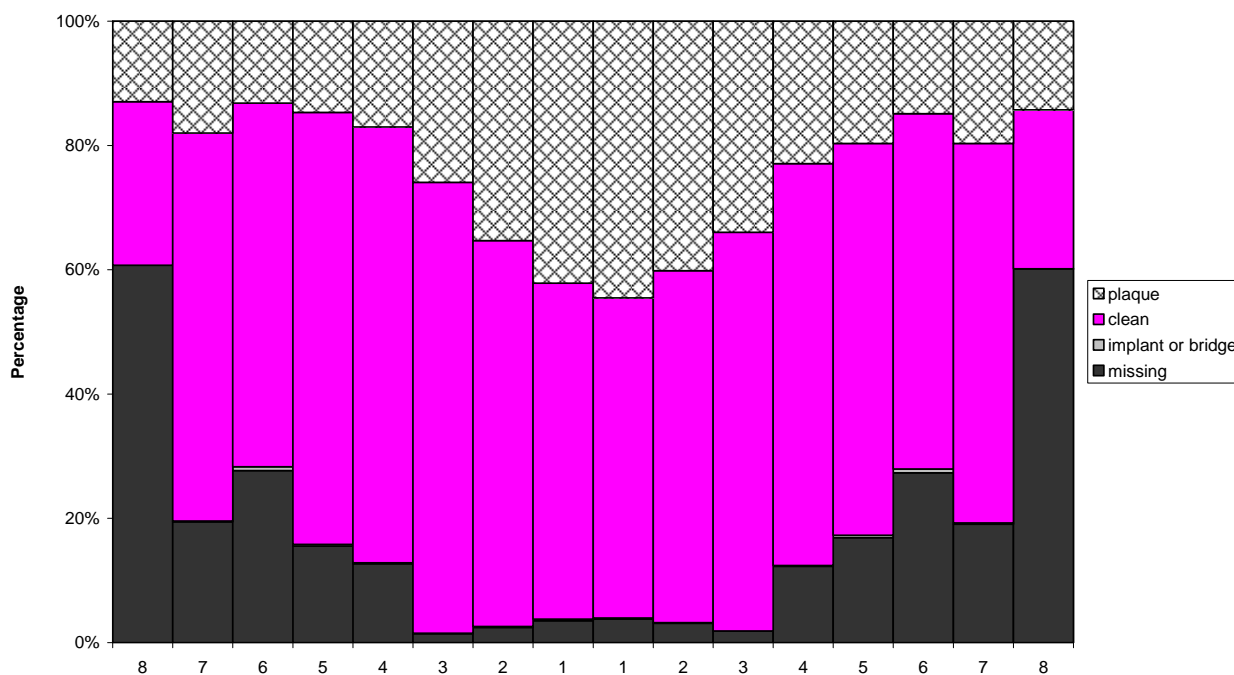
*Figure 5.2.1, Table 5.2.6*

**Figure 5.2.1 Distribution of plaque around the mouth: 2009**

All dentate adults Upper Jaw



All dentate adults Lower Jaw



There were no significant differences between age groups in the proportion of dentate adults with visible plaque by age group. Men were more likely to have plaque than women (71 per cent compared with 61 per cent) and they also had a higher proportion of affected teeth (27 per cent versus 20 per cent). National and regional differences in the prevalence of plaque were also evident, ranging from 77 per cent in Wales to 66 per cent in England and 51 per cent in Northern Ireland. Between SHAs the proportion of dentate adults with plaque varied from a low of 42 per cent in the East of England to a high of 81 per cent in the West Midlands and the North West. However, because of uncertainties about calibration and the regional distribution of examiners, regional differences should be interpreted with caution (See Appendix 3 of the ADHS Foundation Report<sup>15</sup>). Visible plaque also varied according to the socio-economic classification of the household, 73 per cent of dentate adults from routine and manual occupation households had plaque compared with 59 per cent of adults from managerial and professional occupation households.

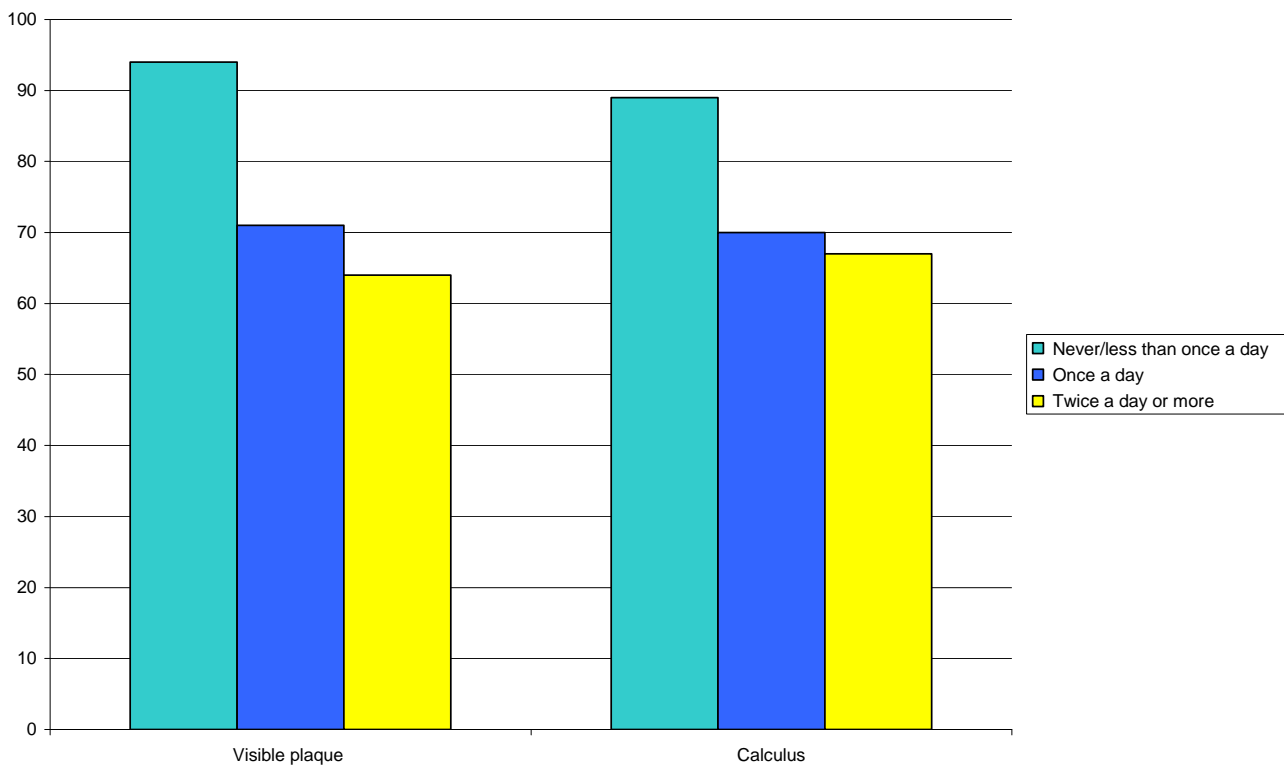
*Table 5.2.7*

Table 5.2.8 shows that dentate adults who said that they attend the dentist for regular check-ups, a good indicator of motivation towards maintaining oral health, were less likely to have visible plaque (61 per cent) than those who reported never having been to the dentist (88 per cent). Moreover, the average percentage of teeth with visible plaque of adults who only went to the dentist when they were having trouble with their teeth was 33 per cent, compared with 22 per cent of those who went for an occasional check-up and 19 per cent of those adults who went for a regular check-up.

The prevalence of visible plaque was also associated with reported frequency of teeth cleaning; 64 per cent of dentate adults who cleaned their teeth at least twice a day had visible plaque compared with 94 per cent of those who cleaned their teeth less than once a day or never. There was a similar pattern for the average percentage of teeth affected: 58 per cent of teeth that were cleaned less than once a day or never had visible plaque compared 21 per cent of teeth cleaned at least twice a day or more. This relationship is expected given the evidence that frequent brushing reduces plaque, however that 64 per cent of adults who clean their teeth twice a day or more still had plaque and that 21 per cent of their teeth were affected suggests that these adults while clearly motivated towards good oral hygiene are not cleaning as effectively as they could.

*Figure 5.2.2, Table 5.2.8*

**Figure 5.2.2 Presence of visible plaque and calculus by frequency of teeth cleaning, 2009**



Adults who had been to the dentist more recently (within the previous 12 months) were less likely to have visible plaque on their teeth (63 per cent) and have a smaller proportion of their teeth affected (20 per cent) than adults whose last visit to the dentist had been between one and five years ago (72 per cent and 28 per cent). Current smokers also had more teeth affected by plaque (31 per cent) than ex-smokers or non-smokers (21 per cent).

*Table 5.2.8*

The prevalence of visible plaque was recorded in 1998 as well as 2009 and changes in the prevalence in England are shown in Table 5.2.9. The percentage of dentate adults with visible plaque fell from 75 per cent in 1998 to 66 per cent in 2009 and the percentage of teeth with visible plaque also fell from 36 per cent to 23 per cent. These figures indicate substantial variation over the last decade or so, however caution should be taken when interpreting them because of uncertainties about calibration and the distribution of examiners.

*Table 5.2.9*

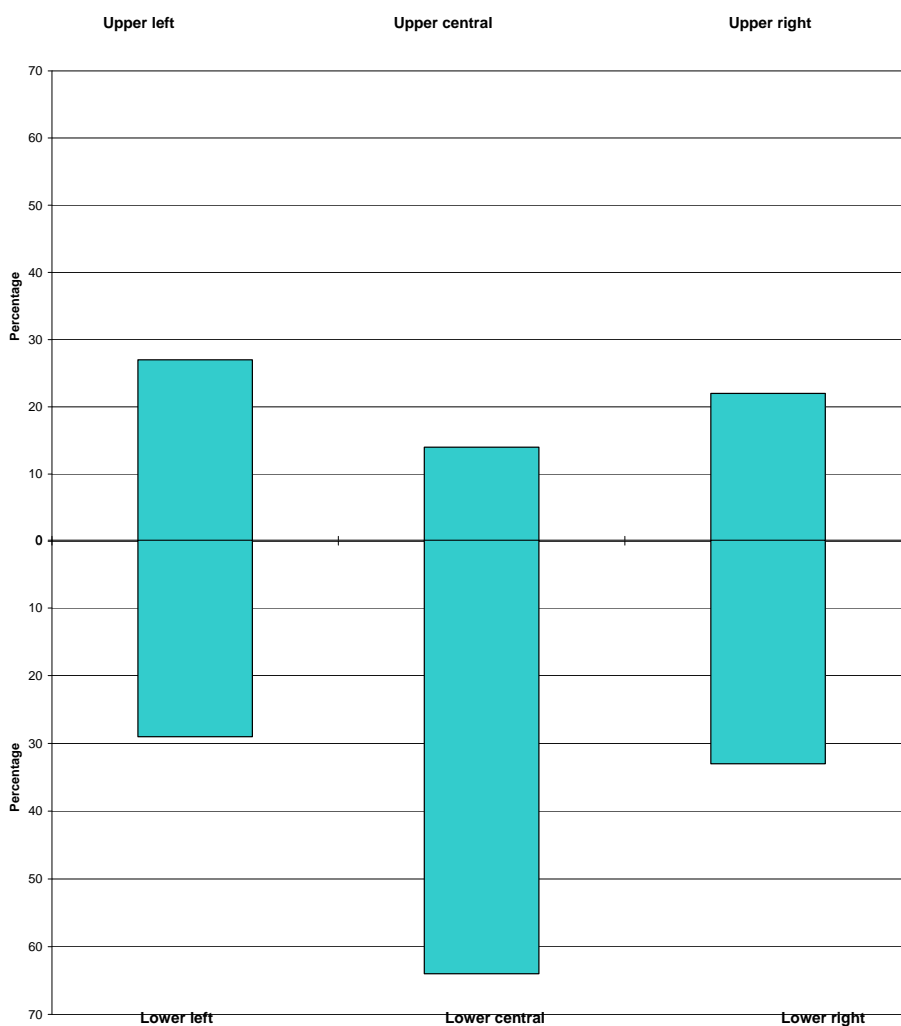
Dental calculus is the calcified or calcifying deposits of plaque which form on teeth and dentures. While not an indicator of periodontal disease itself (although patients with periodontal disease usually have calculus), it is regarded as an important risk factor as it can prevent effective cleaning and plaque removal. The presence of calculus is therefore a good proxy measure of long-term poor oral hygiene. Once formed calculus is extremely difficult to

brush away and usually requires professional removal. The management of most periodontal diseases begins with a combination of improved oral hygiene and meticulous removal of calculus from the teeth.

Table 5.2.11 shows that 68 per cent of dentate adults had calculus present in at least one sextant of the mouth and on average 1.8 sextants were affected. The presence of calculus was recorded for each sextant in the mouth, and Figure 5.2.3 indicates where in the mouth calculus tends to occur. It can be seen that calculus was more prevalent in the lower jaw, and in the central sextant. This mirrors the position of plaque on the teeth of those adults who have it.

Figure 5.2.3, Tables 5.2.10 and 5.2.11

Figure 5.2.3 Proportion of sextants with calculus, 2009



Adults aged 16 to 24 years had the lowest levels of calculus (61 per cent), and levels were fairly consistent among all other age groups ranging from 68 to 72 per cent. As with plaque, more calculus was observed in the mouths of men than women (72 per cent compared with 65 per cent) and although the levels varied by SHA within England from a high of 83 per cent in the East Midlands and West Midlands SHA to a low of 46 per cent in the East of England SHA, there were no differences between England, Wales and Northern Ireland. Finally, levels of calculus were also related to socio-economic classification of the household with 62 per cent of adults from managerial and professional occupation households having calculus, compared with 75 per cent from routine and manual occupation households.

*Table 5.2.11*

There was a strong association between the prevalence of calculus and usual reason for dental attendance. While 64 per cent of adults who attended for a regular check up had calculus, this rose to 86 per cent of those adults who had never been to a dentist. Similarly other behavioural indicators of motivation towards maintaining good oral health were also associated with level of calculus. Sixty-seven per cent of adults who reported brushing their teeth twice a day or more had calculus compared with 89 per cent of those who said that they brushed their teeth less than once a day or never. Adults who attended the dentist more recently also had less calculus than those who had not been within the 12 months prior to interview; 65 per cent of those who had attended within 12 months of the examination had calculus, compared with 84 per cent of those who had not attended in over a decade. Also the number of sextants affected by calculus doubled depending on how regularly an adult attended a dentist with 1.5 sextants affected among those who had attended 12 months prior to the examination compared with 3.0 sextants among those who had not attended for over ten years. Current smokers were also more likely than those who used to smoke or had never smoked to have calculus, 79 per cent compared with 65 and 66 per cent respectively.

*Table 5.2.12*

## Conclusion

The importance of tooth brushing twice a day is a message that appears to have been taken on board by the majority of dentate adults; 75 per cent of adults questioned on the survey said that they brushed their teeth at least twice a day. Dentists and members of the dental team have contributed to this message with 78 percent of adults recalling receiving advice from them. Despite this, 66 percent of adults had plaque on at least one tooth and 68 percent had calculus in at least one sextant. Whilst twice-daily brushing is now a fact of life for three quarters of the population, there is still some room for improvements in the effectiveness of that cleaning.

Dental teams are also in a position to provide advice on diet and smoking, both of which impact on oral health, and for the first time in the ADHS series these issues were considered in the 2009 survey. Only 9 percent of dentate and 7 percent of edentate adults who attended the dentist in the last 2 years recalled being asked about smoking; two thirds of adults said they had never been asked about their diet.

# Notes and references

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# Tables

## Presentation of data

- Figures are rounded to the nearest whole value. This could have an impact on row or column percentages which may add to 99 per cent or 101 per cent.
- Where “0 per cent” is shown in a table, this indicates that fewer than 0.5 per cent of people gave this answer. Instances where no answers for a particular response were given are indicated in the tables by '-’.
- A few respondents did not answer some questions. These ‘*no answers*’ have been excluded from the analysis. Tables that describe the same population have slightly varying bases.
- The individual figures for unweighted sample sizes are rounded to the nearest 10 cases and may not add up to the figures shown in the totals.
- Small bases are associated with relatively high sampling errors and this affects the reliability of estimates. In general, percentage distribution is shown if the base is 30 or more. Where estimates are considered unreliable due to relatively high sampling error, figures in the tables are presented with a turquoise shaded background.

**Table 5.1.1 Reported frequency of tooth cleaning by characteristics of dentate adults**

Dentate adults Characteristics of dentate adults	Reported frequency of tooth cleaning				Unweighted Base	Weighted Base (000s)
	Twice a day or more often	Once a day	Less than once a day	Never		
All	% 75	23	2	1	10,540	42,797
<b>Age</b>						
16-24	% 72	24	3	1	1,030	6,653
25-34	% 76	22	2	0	1,500	7,238
35-44	% 80	18	1	1	2,040	8,350
45-54	% 76	22	2	1	2,010	7,343
55-64	% 73	24	3	1	1,840	6,291
65-74	% 71	26	2	1	1,290	3,990
75-84	% 70	27	2	1	700	2,450
85 and over	% 63	32	4	1	130	481
<b>Sex</b>						
Men	% 67	28	4	1	4,720	20,983
Women	% 82	17	1	0	5,820	21,814
<b>Country</b>						
England	% 75	22	2	1	9,000	39,321
Wales	% 71	25	3	1	880	2,183
Northern Ireland	% 75	22	3	0	660	1,293
<b>English Strategic Health Authority</b>						
North East	% 71	27	2	1	890	1,924
North West	% 78	20	1	0	900	5,205
Yorkshire & The Humber	% 72	22	5	1	930	3,919
East Midlands	% 71	26	2	1	1,040	3,380
West Midlands	% 71	27	2	1	790	3,959
East Of England	% 77	21	2	1	990	4,452
London	% 77	22	1	0	730	5,941
South East Coast	% 76	21	2	1	850	3,311
South Central	% 79	20	1	0	940	3,192
South West	% 73	22	3	1	950	4,039
<b>Socio-economic classification of household<sup>1</sup></b>						
Managerial and professional occupations	% 79	19	1	0	3,900	16,019
Intermediate occupations	% 73	24	2	1	1,900	7,552
Routine and manual occupations	% 68	28	3	1	3,350	13,701
<b>Dental attendance</b>						
Regular check up	% 80	19	1	0	6,970	26,210
Occasional check up	% 74	23	2	1	870	4,142
Only with trouble	% 65	30	4	1	2,560	11,663
Never been to dentist	% 53	37	6	4	140	736
<b>Denture use</b>						
Natural teeth and denture	% 67	29	3	1	1,770	6,021
Only natural teeth	% 76	22	2	1	8,770	36,769

<sup>1</sup> Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

**Table 5.1.2 Reported frequency of tooth cleaning: England, 1988-2009**

<i>Dentate adults</i>	<i>England: 1988-2009</i>		
	<b>1988</b>	<b>1998</b>	<b>2009</b>
<b>Reported frequency of tooth cleaning</b>			
	%	%	%
Twice a day or more often	67	74	75
Once a day	27	22	22
Less than once a day	5	4	2
Never	1	0	1
<b>Unweighted Base</b>	3,016	3,010	9,000
<b>Weighted Base (000s)</b>			39,321

Figures for 1978 not shown as the survey categories were different

**Table 5.1.3 Use of fluoride toothpaste by characteristics of dentate adults**

<i>Dentate adults</i> <sup>1</sup>		<i>England, Wales, Northern Ireland: 2009</i>				
<b>Characteristics of dentate adults</b>		<b>Fluoride content of toothpaste</b>			<b>Unweighted</b>	<b>Weighted</b>
		<b>1350-1500ppm<sup>2</sup></b>	<b>1000-1350ppm<sup>2</sup></b>	<b>None/ 550ppm or less<sup>2</sup></b>	<b>Base</b>	<b>Base (000s)</b>
<b>All</b>	%	76	18	6	9,380	36,981
<b>Age</b>						
16-24	%	79	19	3	900	5,627
25-34	%	81	16	3	1,320	6,150
35-44	%	76	20	4	1,820	7,232
45-54	%	74	20	6	1,790	6,405
55-64	%	74	18	8	1,650	5,491
65-74	%	72	18	10	1,160	3,498
75-84	%	71	17	12	630	2,172
85 and over	%	70	14	16	110	405
<b>Sex</b>						
Men	%	77	18	6	4,170	17,983
Women	%	75	19	6	5,210	18,997
<b>Country</b>						
England	%	76	19	6	7,890	33,646
Wales	%	76	17	6	840	2,074
Northern Ireland	%	77	19	4	640	1,261
<b>English Strategic Health Authority</b>						
North East	%	76	18	6	850	1,846
North West	%	75	20	5	830	4,773
Yorkshire & The Humber	%	79	16	5	830	3,460
East Midlands	%	78	18	4	960	3,055
West Midlands	%	74	20	6	650	3,302
East Of England	%	78	17	5	740	3,303
London	%	72	19	9	530	4,245
South East Coast	%	74	22	3	750	2,930
South Central	%	74	19	7	870	2,982
South West	%	78	17	5	890	3,750
<b>Socio-economic classification of household<sup>3</sup></b>						
Managerial and professional occupations	%	77	17	6	3,460	13,818
Intermediate occupations	%	76	18	6	1,710	6,727
Routine and manual occupations	%	75	19	6	3,000	11,824
<b>Dental attendance</b>						
Regular check up	%	76	18	6	6,290	23,171
Occasional check up	%	75	20	4	750	3,467
Only with trouble	%	77	18	5	2,220	9,771
Never been to dentist	%	72	21	6	100	537
<b>Denture use</b>						
Natural teeth and denture	%	73	17	9	1,580	5,292
Only natural teeth	%	76	19	5	7,790	31,682

<sup>1</sup> Excludes those who reported that they never cleaned their teeth and those who didn't give enough information for fluoride content to be coded

<sup>2</sup> Parts per million

<sup>3</sup> Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

**Table 5.1.4 Use of dental hygiene products***Dentate adults*<sup>1</sup> *England, Wales, Northern Ireland: 2009*

<b>Dental hygiene products used</b>	<b>Percentage who used:</b>
Just ordinary toothbrush & toothpaste	42
Other products	58
Mouthwash	31
Electric toothbrush	26
Dental floss	21
Interdens toothpick/woodstick	7
Interspace brush	6
Sugar-free chewing gum	3
Denture cleaning product	2
Other	1
<b><i>Unweighted Base</i></b>	<b><i>10,480</i></b>
<b><i>Weighted Base (000s)</i></b>	<b><i>42,549</i></b>

Percentages may add to more than 100% as respondents could give more than one answer

<sup>1</sup> Excludes those who reported that they never cleaned their teeth

**Table 5.1.5 Use of dental hygiene products by characteristics of dentate adults**

Characteristics of dentate adults <sup>1</sup>	Dental hygiene product used					Unweighted Base	Weighted Base (000s)
	Just toothbrush and toothpaste	Other products	Other products <sup>2</sup>				
			Mouthwash	Electric toothbrush	Dental floss		
<b>All</b>	42	58	Percentage who used:			10,480	42,549
			31	26	21		
<b>Age</b>							
16-24	54	46	31	15	11	1,030	6,616
25-34	41	59	40	24	24	1,490	7,204
35-44	38	62	37	28	27	2,030	8,300
45-54	36	64	33	31	28	2,000	7,304
55-64	37	63	26	34	23	1,830	6,256
65-74	45	55	18	28	18	1,290	3,960
75-84	53	47	15	21	9	690	2,432
85 and over	65	34	9	17	6	130	475
<b>Sex</b>							
Men	47	53	30	25	16	4,670	20,757
Women	39	61	31	27	26	5,810	21,789
<b>Country</b>							
England	41	59	31	27	22	8,950	39,085
Wales	54	46	25	19	16	880	2,171
Northern Ireland	52	48	31	14	17	660	1,291
<b>English Strategic Health Authority</b>							
North East	49	51	30	24	14	890	1,915
North West	41	59	35	23	20	900	5,199
Yorkshire & The Humber	47	53	29	23	17	920	3,861
East Midlands	43	57	33	23	19	1,040	3,362
West Midlands	48	52	28	23	16	780	3,921
East Of England	37	63	33	32	27	980	4,425
London	43	57	32	25	27	720	5,925
South East Coast	37	63	33	34	25	840	3,292
South Central	34	66	28	39	27	940	3,189
South West	37	63	28	28	23	940	3,997
<b>Socio-economic classification of household <sup>3</sup></b>							
Managerial and professional occupations	34	66	33	34	28	3,890	15,989
Intermediate occupations	43	57	31	25	22	1,890	7,482
Routine and manual occupations	51	49	29	18	13	3,320	13,559
<b>Dental attendance</b>							
Regular check up	37	63	31	31	27	6,960	26,169
Occasional check up	43	56	32	25	21	860	4,112
Only with trouble	53	47	31	16	11	2,530	11,513
Never been to dentist	76	24	19	7	0	130	706
<b>Denture use</b>							
Natural teeth and denture	49	51	23	19	10	1,750	6,077
Only natural teeth	41	59	32	27	23	8,730	36,432
<b>Reported frequency of tooth cleaning</b>							
Less than once a day	63	37	23	12	5	220	955
Once a day	51	49	26	21	13	2,340	9,676
Twice a day or more	39	61	33	28	25	7,920	31,916

<sup>1</sup> Excludes those who reported that they never cleaned their teeth

<sup>2</sup> Percentages may add to more than 100% as respondents could give more than one answer

<sup>3</sup> Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

**Table 5.1.6 Use of dental hygiene products: England, 1978-2009**

<i>Dentate adults</i> <sup>1</sup> <b>Dental hygiene product used</b>	<i>England: 1978-2009</i>			
	<b>1978</b>	<b>1988</b>	<b>1998</b>	<b>2009</b>
Just ordinary toothbrush & toothpaste	78	63	48	41
Other products	22	37	52	59
Mouthwash <sup>2</sup>	NA	10	23	31
Dental floss	8	21	28	22
Interdens toothpick/woodstick	10	5	5	7
<b><i>Unweighted Base</i></b>	<i>2,717</i>	<i>3,015</i>	<i>2,978</i>	<i>8,950</i>
<b><i>Weighted Base (000s)</i></b>				<i>39,085</i>

Percentages may add to more than 100% as respondents could give more than one answer

<sup>1</sup> Excludes those who reported that they never cleaned their teeth

<sup>2</sup> Data not available for 1978

**Table 5.1.7 Advice on brushing by characteristics of dentate adults**

<i>Dentate adults</i> <sup>1</sup>	<i>England, Wales, Northern Ireland: 2009</i>		
<b>Characteristics of dentate adults</b>	<b>Percentage given advice on brushing</b>	<b>Unweighted Base</b>	<b>Weighted Base (000s)</b>
<b>All</b>	78	10,400	42,050
<b>Age</b>			
16-24	75	1,020	6,537
25-34	81	1,460	6,990
35-44	82	2,010	8,200
45-54	82	1,990	7,272
55-64	80	1,830	6,244
65-74	72	1,290	3,967
75-84	62	680	2,393
85 and over	54	120	447
<b>Sex</b>			
Men	78	4,640	20,517
Women	78	5,760	21,532
<b>Country</b>			
England	78	8,860	38,605
Wales	74	880	2,172
Northern Ireland	77	660	1,273
<b>English Strategic Health Authority</b>			
North East	79	880	1,899
North West	73	890	5,165
Yorkshire & The Humber	75	920	3,882
East Midlands	80	1,020	3,258
West Midlands	68	770	3,897
East Of England	82	970	4,375
London	80	700	5,680
South East Coast	85	840	3,292
South Central	85	930	3,140
South West	78	940	4,018
<b>Socio-economic classification of household</b> <sup>2</sup>			
Managerial and professional occupations	84	3,880	15,869
Intermediate occupations	77	1,880	7,395
Routine and manual occupations	72	3,280	13,383
<b>Dental attendance</b>			
Regular check up	82	6,970	26,201
Occasional check up	78	870	4,164
Only with trouble	70	2,550	11,635
<b>Denture use</b>			
Natural teeth and denture	68	1,760	5,981
Only natural teeth	79	8,640	36,062

<sup>1</sup> Excludes people who had never been to dentist

<sup>2</sup> Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

**Table 5.1.8 Dental hygiene advice: England, 1998 and 2009**

<i>Dentate adults</i>	<i>England: 1978-2009</i>	
	1998	2009
Percentage given dental hygiene advice/information <sup>1</sup>	63	78
<b>Unweighted Base</b>	3,010	8,860
<b>Weighted Base (000s)</b>		38,605

<sup>1</sup> See text for question wording differences between 1998 and 2009

**Table 5.2.1 Smoking status by sex, country and dental status**

<i>All adults</i>	<i>England, Wales, Northern Ireland: 2009</i>								
	<i>Dentate adults</i>			<i>Edentate adults</i>			<i>All adults</i>		
Characteristics of adults	Percentage smoking cigarettes	Unweighted Base	Weighted Base (000s)	Percentage smoking cigarettes	Unweighted Base	Weighted Base (000s)	Percentage smoking cigarettes	Unweighted Base	Weighted Base (000s)
All	22	10,550	42,846	24	810	2,711	22	11,370	45,557
<b>Sex</b>									
Men	24	4,740	21,042	26	340	1,050	24	5,080	22,092
Women	21	5,820	21,803	23	470	1,662	21	6,290	23,465
<b>Country</b>									
England	22	9,010	39,353	23	650	2,379	22	9,650	41,732
Wales	23	890	2,201	28	110	237	24	1,000	2,437
Northern Ireland	26	660	1,292	19	60	95	25	720	1,388

Shaded figures indicate the estimates are unreliable and any analysis using these figures may be invalid. Any use of these shaded figures must be accompanied by this disclaimer.

**Table 5.2.2 Smoking status by characteristics of dentate adults**

<i>Dentate adults</i>	<i>England, Wales, Northern Ireland: 2009</i>		
<b>Characteristics of dentate adults</b>	<b>Percentage smoking cigarettes</b>	<b>Unweighted Base</b>	<b>Weighted Base (000s)</b>
<b>All</b>	22	10,550	42,846
<b>Age</b>			
16-24	28	1,030	6,621
25-34	30	1,500	7,241
35-44	25	2,040	8,373
45-54	22	2,010	7,365
55-64	19	1,850	6,312
65-74	11	1,300	3,999
75-84	7	700	2,454
85 and over	6	130	481
<b>Sex</b>			
Men	24	4,740	21,042
Women	21	5,820	21,803
<b>Country</b>			
England	22	9,010	39,353
Wales	23	890	2,201
Northern Ireland	26	660	1,292
<b>English Strategic Health Authority</b>			
North East	23	890	1,930
North West	26	900	5,201
Yorkshire & The Humber	24	930	3,926
East Midlands	22	1,050	3,391
West Midlands	22	790	3,974
East Of England	21	990	4,455
London	21	730	5,929
South East Coast	21	850	3,321
South Central	16	940	3,198
South West	23	950	4,028
<b>Socio-economic classification of household<sup>1</sup></b>			
Managerial and professional occupations	16	3,910	16,018
Intermediate occupations	22	1,900	7,560
Routine and manual occupations	30	3,360	13,735

<sup>1</sup> Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

**Table 5.2.3 Smoking advice by dental status**

<i>All adults</i> <sup>1</sup>	<i>England, Wales, Northern Ireland: 2009</i>	
	<b>Adults who had been to dentist in last 2 years</b>	
	<b>Dentate</b>	<b>Edentate</b>
<b>Given advice or help by dental team on giving up smoking at last visit</b>		
	%	%
Yes	9	7
No	57	72
Never smoked	35	22
Total	100	100
<b><i>Unweighted Base</i></b>	<i>8,320</i>	<i>220</i>
<b><i>Weighted Base (000s)</i></b>	<i>32,909</i>	<i>730</i>

<sup>1</sup> Excludes adults who had not been to dentist in last 2 years.

**Table 5.2.4 Indicator of sugar intake by characteristics of dentate adults**

<i>Dentate adults</i>	<i>England, Wales, Northern Ireland: 2009</i>		
<b>Characteristics of dentate adults</b>	<b>Percentage of adults with high sugar intake <sup>1</sup></b>	<b>Unweighted Base</b>	<b>Weighted Base (000s)</b>
<b>All</b>	50	10,560	42,907
<b>Age</b>			
16-24	60	1,040	6,691
25-34	52	1,500	7,241
35-44	47	2,040	8,373
45-54	42	2,010	7,361
55-64	45	1,850	6,312
65-74	49	1,300	3,999
75-84	61	700	2,450
85 and over	65	130	481
<b>Sex</b>			
Men	53	4,740	21,090
Women	46	5,820	21,818
<b>Country</b>			
England	50	9,010	39,408
Wales	51	890	2,201
Northern Ireland	54	660	1,299
<b>English Strategic Health Authority</b>			
North East	50	900	1,932
North West	44	900	5,209
Yorkshire & The Humber	51	930	3,927
East Midlands	48	1,050	3,391
West Midlands	50	790	3,982
East Of England	55	990	4,455
London	45	730	5,941
South East Coast	56	850	3,321
South Central	47	940	3,209
South West	53	950	4,042
<b>Socio-economic classification of household <sup>2</sup></b>			
Managerial and professional occupations	50	3,910	16,048
Intermediate occupations	48	1,910	7,562
Routine and manual occupations	51	3,360	13,756
<b>Dental attendance</b>			
Regular check up	49	6,980	26,249
Occasional check up	47	870	4,172
Only with trouble	53	2,570	11,701
Never been to dentist	41	140	736
<b>Denture use</b>			
Natural teeth and denture	52	1,770	6,039
Only natural teeth	49	8,790	36,861

<sup>1</sup> Has cakes, biscuits, puddings or pastries, sweets or chocolate or fizzy drinks 6 or more times a week

<sup>2</sup> Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

**Table 5.2.5 Diet advice given over lifetime**

<i>Dentate adults</i> <sup>1</sup>		<i>England, Wales, Northern Ireland: 2009</i>
<b>Diet advice given over lifetime</b>		
		%
Asked about diet and given advice		27
Asked about diet but not given advice		9
Never asked about diet		64
Total		100
<b>Unweighted Base</b>		<b>10,310</b>
<b>Weighted Base (000s)</b>		<b>41,665</b>

<sup>1</sup> Excludes people who had never been to dentist

**Table 5.2.6 Presence of plaque for individual teeth**

<i>Dentate adults</i>		<i>England, Wales, Northern Ireland: 2009</i>															
<b>Condition</b>	<b>UPPER</b>								<b>UPPER</b>								
	<b>Left</b>								<b>Right</b>								
	<b>8</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
Plaque	13	19	13	11	10	13	12	13	13	13	13	10	11	13	18	11	
Clean	26	63	64	68	67	79	77	79	78	77	80	66	70	64	64	27	
Implant or bridge	0	0	1	1	1	0	1	1	1	1	1	1	1	1	0	0	
Missing	61	17	22	20	22	7	9	7	8	9	7	23	19	22	17	61	
<b>Condition</b>	<b>LOWER</b>								<b>LOWER</b>								
	<b>Left</b>								<b>Right</b>								
	<b>8</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
Plaque	13	18	13	15	17	26	35	42	45	40	34	23	20	15	20	14	
Clean	26	62	59	70	70	73	62	54	52	57	64	65	63	57	61	26	
Implant or bridge	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	
Missing	61	19	28	16	13	1	2	4	4	3	2	12	17	27	19	60	

**Table 5.2.7 Visible plaque by characteristics of dentate adults**

<i>Dentate adults</i>	<i>England, Wales, Northern Ireland: 2009</i>					
<b>Characteristics of dentate adults</b>	<b>Percentage of dentate adults with visible plaque</b>	<b>Mean number of teeth with visible plaque</b>	<b>Mean percentage of teeth with visible plaque</b>	<b>Mean number of teeth</b>	<b>Unweighted Base</b>	<b>Weighted Base (000s)</b>
<b>All</b>	66	6.0	23	25.7	6,470	42,918
<b>Age</b>						
16-24	64	6.5	23	28.6	650	6,724
25-34	66	6.7	23	28.8	910	7,090
35-44	64	6.3	23	27.6	1,280	8,509
45-54	67	5.6	22	26.0	1,200	7,198
55-64	70	5.8	25	23.2	1,160	6,448
65-74	66	4.7	22	20.9	810	4,109
75-84	69	4.8	28	17.1	390	2,347
85 and over	67	4.2	30	14.0	80	494
<b>Sex</b>						
Men	71	6.9	27	25.8	2,960	21,069
Women	61	5.0	20	25.5	3,510	21,849
<b>Country</b>						
England	66	5.9	23	25.7	5,620	39,420
Wales	77	7.7	32	24.3	420	2,204
Northern Ireland	51	4.0	16	25.1	430	1,295
<b>English Strategic Health Authority</b>						
North East	70	5.7	23	25.0	570	1,924
North West	81	6.8	27	25.3	600	5,218
Yorkshire & The Humber	68	6.6	26	25.8	500	3,912
East Midlands	78	9.2	35	26.2	710	3,382
West Midlands	81	6.8	27	25.1	490	3,973
East Of England	42	2.6	10	26.1	650	4,452
London	67	7.8	29	27.0	400	6,016
South East Coast	45	2.9	11	25.4	450	3,314
South Central	60	4.1	16	26.0	610	3,204
South West	67	5.4	22	24.8	660	4,026
<b>Socio-economic classification of household<sup>1</sup></b>						
Managerial and professional occupations	59	4.7	18	26.6	2,590	16,923
Intermediate occupations	68	6.0	24	25.3	1,180	7,797
Routine and manual occupations	73	7.4	30	24.7	2,020	13,612

<sup>1</sup> Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Shaded figures indicate the estimates are unreliable and any analysis using these figures may be invalid. Any use of these shaded figures must be accompanied by this disclaimer.

**Table 5.2.8 Visible plaque by reported dental and lifestyle behaviour**

<i>Dentate adults</i>				<i>England, Wales, Northern Ireland: 2009</i>		
<b>Reported dental and lifestyle behaviour</b>	<b>Percentage of dentate adults with visible plaque</b>	<b>Mean number of teeth with visible plaque</b>	<b>Mean percentage of teeth with visible plaque</b>	<b>Mean number of teeth</b>	<b>Unweighted Base</b>	<b>Weighted Base (000s)</b>
<b>All</b>	66	6.0	23	25.7	6,470	42,918
<b>Dental attendance</b>						
Regular check up	61	4.7	19	25.4	4,380	26,817
Occasional check up	67	5.8	22	26.8	550	4,278
Only with trouble	76	8.4	33	25.6	1,450	11,063
Never been to dentist	88	15.9	55	28.8	80	710
<b>Time since last dental visit</b>						
Less than 1 year	63	5.0	20	25.5	4,960	31,309
Between 1 and 5 years	72	7.3	28	26.1	970	7,393
Over 5 up to 10 years	82	9.0	34	26.1	260	2,068
Over 10 years	79	9.9	40	24.6	200	1,425
<b>Frequency of teeth cleaning</b>						
Never/less than once a day	94	13.3	58	23.1	180	1,321
Once a day	71	6.7	27	24.7	1,450	9,704
Twice a day or more	64	5.4	21	26.1	4,820	31,782
<b>Smoking status</b>						
Current smoker	76	7.8	31	25.4	1,270	8,937
Ex-smoker	64	5.1	21	24.5	2,240	14,186
Never smoked	64	5.7	21	26.6	2,960	19,734
<b>Consumption of sugary foods</b>						
High intake <sup>1</sup>	65	5.8	23	25.5	3,260	21,568
Low intake	68	6.1	24	25.8	3,210	21,350

<sup>1</sup> Has cakes, biscuits, puddings or pastries, sweets or chocolate or fizzy drinks 6 or more times a week

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**Table 5.2.9 Visible plaque: England, 1998 and 2009**

<i>Dentate adults</i>	<i>England: 1998 and 2009</i>	
	<b>1998</b>	<b>2009</b>
Percentage of dentate adults with visible plaque	75	66
Mean number of teeth with visible plaque	8.9	5.9
Mean percentage of teeth with visible plaque	36	23
Mean number of teeth	24.9	25.7
<b><i>Unweighted Base</i></b>	2,186	5,620
<b><i>Weighted Base (000s)</i></b>		39,420

**Table 5.2.10 Presence of calculus for individual sextants**

<i>Dentate adults</i>	<i>England, Wales, Northern Ireland: 2009</i>		
	<b>Proportion of people with calculus in sextant</b>	<b><i>Unweighted Base</i></b>	<b><i>Weighted Base (000s)</i></b>
Upper left	27	5,730	38,769
Upper central	14	6,110	40,886
Upper right	22	5,690	38,506
Lower left	29	5,910	39,770
Lower central	64	6,360	42,298
Lower right	33	5,890	39,651

**Table 5.2.11 Calculus by characteristics of dentate adults**

<i>Dentate adults</i>	<i>England, Wales, Northern Ireland: 2009</i>			
<b>Characteristics of dentate adults</b>	<b>Percentage of dentate adults with calculus</b>	<b>Mean number of sextants with calculus</b>	<b>Unweighted Base</b>	<b>Weighted Base (000s)</b>
<b>All</b>	68	1.8	6,410	42,614
<b>Age</b>				
16-24	61	1.5	640	6,708
25-34	68	1.9	910	7,059
35-44	68	1.8	1,280	8,488
45-54	71	2.0	1,190	7,136
55-64	72	2.0	1,140	6,345
65-74	71	1.6	790	4,067
75-84	70	1.5	390	2,334
85 and over	69	1.2	80	478
<b>Sex</b>				
Men	72	2.0	2,940	20,928
Women	65	1.6	3,480	21,686
<b>Country</b>				
England	69	1.8	5,570	39,137
Wales	67	1.5	410	2,197
Northern Ireland	66	1.8	430	1,280
<b>English Strategic Health Authority</b>				
North East	66	1.7	560	1,905
North West	75	2.0	590	5,191
Yorkshire & The Humber	67	1.8	490	3,891
East Midlands	83	2.3	700	3,370
West Midlands	83	2.2	480	3,953
East Of England	46	0.9	640	4,409
London	70	2.1	400	6,006
South East Coast	55	1.5	450	3,293
South Central	66	1.3	600	3,153
South West	71	2.1	650	3,966
<b>Socio-economic classification of household<sup>1</sup></b>				
Managerial and professional occupations	62	1.4	2,580	16,851
Intermediate occupations	69	1.9	1,170	7,743
Routine and manual occupations	75	2.1	1,990	13,456

<sup>1</sup> Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

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**Table 5.2.12 Calculus by reported dental and lifestyle behaviour**

<i>Dentate adults</i>		<i>England, Wales, Northern Ireland: 2009</i>			
<b>Reported dental and lifestyle behaviour</b>	<b>Percentage of dentate adults with calculus</b>	<b>Mean number of sextants with calculus</b>	<b>Unweighted Base</b>	<b>Weighted Base (000s)</b>	
<b>All</b>	68	1.8	6,410	42,614	
<b>Dental attendance</b>					
Regular check up	64	1.5	4,350	26,670	
Occasional check up	65	1.7	550	4,261	
Only with trouble	79	2.5	1,430	10,932	
Never been to dentist	86	3.5	80	702	
<b>Time since last dental visit</b>					
Less than 1 year	65	1.5	4,920	31,119	
Between 1 and 5 years	74	2.2	960	7,328	
Over 5 up to 10 years	83	2.6	260	2,055	
Over 10 years	84	3.0	190	1,395	
<b>Frequency of teeth cleaning</b>					
Never/less than once a day	89	3.0	180	1,292	
Once a day	70	2.0	1,440	9,631	
Twice a day or more	67	1.7	4,790	31,579	
<b>Smoking status</b>					
Current smoker	79	2.4	1,250	8,852	
Ex-smoker	65	1.6	2,220	14,060	
Never smoked	66	1.7	2,940	19,640	
<b>Consumption of sugary foods</b>					
High intake <sup>1</sup>	68	1.7	3,230	21,441	
Low intake	69	1.8	3,180	21,174	

<sup>1</sup> Has cakes, biscuits, puddings or pastries, sweets or chocolate or fizzy drinks 6 or more times a week.

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