

# Abertawe Bro Morgannwg University Health Board Oral Health Profile

## Dental caries in 5 year olds 2007/08 and 2011/12

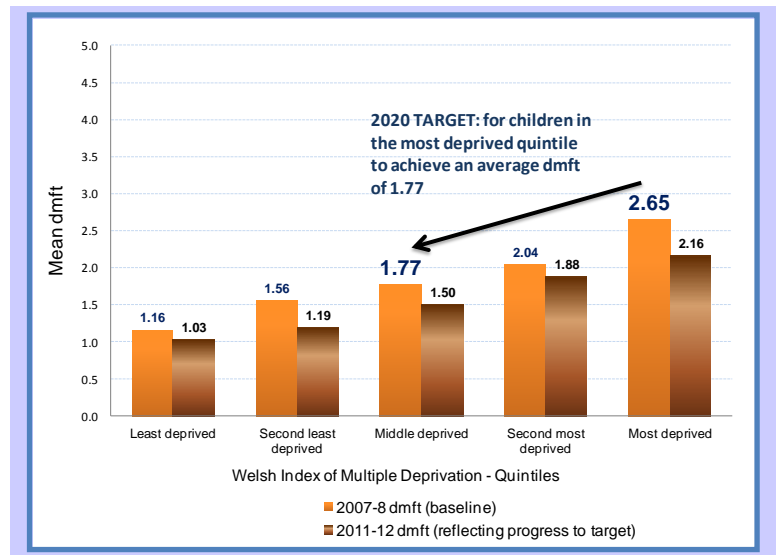
The 2013 Oral Health Profile for Abertawe Bro Morgannwg University Health Board presents oral health data for school year 1 (approximately 5 years of age) generated from a survey undertaken during the winter of 2011/12 and compares it with the previous survey carried out in 2007/08. This profile focuses on local health board (LHB), unitary authority (UA) and upper super output area (USOA) analyses. For Wales’s level data see the “Picture of Oral Health” at the WOHU website.

This is the first comparison of data collected via formal written parental consent, as two sets of data are now available incorporating this approach. Before 2007/08 child oral health surveys used passive consent; this methodological change prohibited analysis of trends as data was no longer comparable.

**Figure 1** Average dmft<sup>1</sup> for 5 year olds in 2007/08 and 2011/12 in Wales, by quintiles of the Welsh Index of Multiple Deprivation

### Key messages

- ◆ Preventable decay levels fell in ABMU 5 year olds, but were within Welsh average range
- ◆ Bridgend saw improvements in child oral health & has lower experience of decay when compared with Wales
- ◆ Child oral health plateaued in Neath Port Talbot, and it experienced higher levels of decay when compared to the rest of Wales



## Progress towards National oral health target

One goal of national oral health policy is to reduce inequalities experienced in children’s oral health. Progress towards this goal is assessed by monitoring trends recorded by child oral health surveys. There are Wales’s level targets for 5 and 12 year olds. For 5 year olds, the aim is to improve the average dmft and the percentage with caries, for the most deprived fifth as at 2007/08 to match the

<sup>1</sup> The average number of decayed, missing and filled teeth (dmft) is a measure of the decay experience in children. It is therefore the burden of disease which theoretically could have been prevented and thus key data for evaluation of efforts to prevent decay.

caries levels experienced by the middle fifth in 2007/08, by 2020. For the most deprived fifth of 5 year old children in Wales, the average dmft was 2.65 in 2007/08. The national child poverty target for 2020 is to bring this average down to 1.77. In 2011/12 the average dmft for the most deprived fifth was 2.16; half a tooth reduction when compared with 2007/08 and good progress towards the 2020 target (Figure 1).

The results of the Wales 2011/12 survey of 5 year olds suggest that prevalence of dental caries is improving but this needs to be confirmed by reviewing the results of future surveys, the next being scheduled for 2015-16.

These targets are **Welsh targets**; to date there are **no** Health Board targets. But, this oral health profile does give an indication of changes to oral health within ABMU.

## Local Health Boards (LHBs)

### PREVENTABLE DECAY

The sum of decayed, missing and filled teeth is a measure of the decay experience of the average child. It is the burden of disease which theoretically could have been prevented.

Average dmft scores for Welsh local health boards in 2007/08 and 2011/12 are presented in Figure 2. Hywel Dda, Betsi Cadwaladr and Abertawe Bro Morgannwg University health boards experienced statistically significant reductions. In ABMU the averages were 2.1 (95%CI<sup>2</sup> 1.9-2.3) and 1.6 (95%CI: 1.5-1.8). ABMU means were similar to the Welsh average for both surveys.

**Figure 2 Average dmft for 5 year olds, Welsh local health boards, 2007/08 compared with 2011/12**

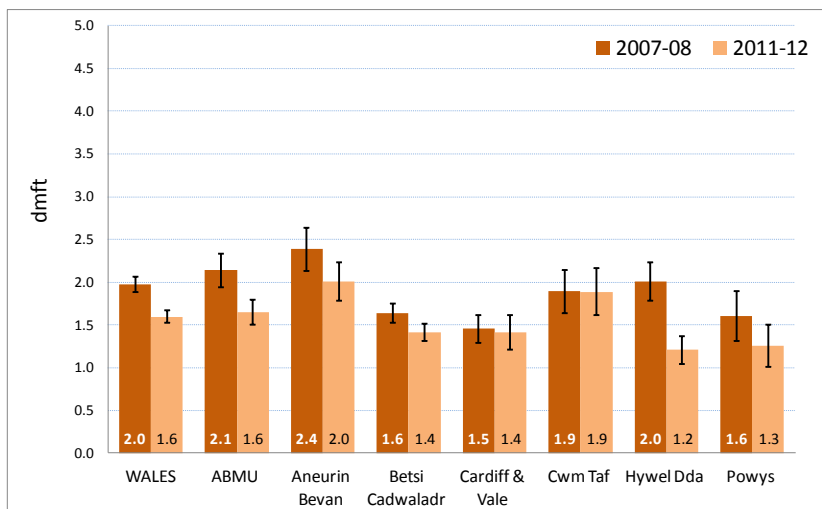
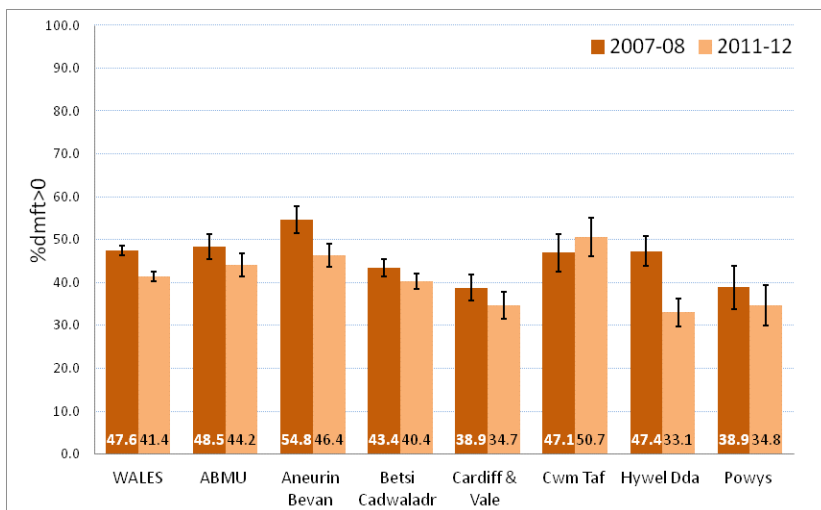


Figure 3 illustrates the proportion of children with at least one decayed tooth (%dmft>0) by LHB in 2007/08 and 2011/12. Although there appears to be a general tendency (except in Cwm Taf) for a reduction in the proportion of children with decay experience, the changes only reach statistical significance in Aneurin Bevan and Hywel Dda LHB areas.

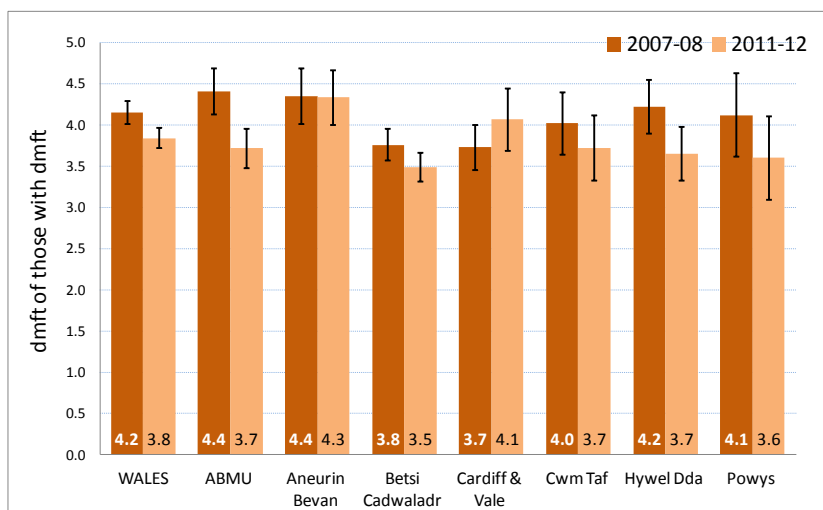
<sup>2</sup> 95%CI represents the 95% lower and upper confidence intervals. A confidence interval constitutes a range of values for a variable of interest, e.g. mean dmft, constructed so that this range has a specified probability of including the true value of the variable. So a 95% confidence interval has a 95% probability of including the true value.

**Figure 3 Percentage of 5 year olds with caries experience (%dmft>0), Welsh local health boards, 2007/08 compared with 2011/12**



The %dmft>0 for ABMU in 2011/12 was 44.2% (95%CI: 41.5%-46.5%) which was within average range when compared with the Welsh average of 41.4% (95%CI: 40.3%-42.5%).

**Figure 4 Average dmft of those with caries experience for 5 year olds, Welsh local health boards, 2007/08 compared with 2011/12**



The average number of decayed, missing and filled teeth among the children with at least one decayed/missing/filled tooth is shown in Figure 4. There is a general tendency for a reduction in the mean scores; the only change shown which reaches statistical significance is in ABMU where the averages for 2007/08 and 2011/12 were 4.4 (95%CI: 4.1-4.7) and 3.7 (95%CI: 3.5-4.0) respectively.

### ACTIVE DECAY

The decayed teeth (dt) component of total experience of decay (dmft) measures active decay. This puts the child at risk of pain, infection and suggests risk of decay of permanent successor teeth. In the past it has been called untreated disease.

The concept of treating all decay in deciduous teeth by providing fillings or extractions is being questioned and researched. Children with decay need to reduce the consumption of sugar in their diets, carry out supervised toothbrushing with fluoride toothpaste and have regular application of fluoride varnish by dental professionals, as opposed to operative dental procedures. Thus dt data is now regarded as a marker for children/families who need support in managing this chronic dental disease.

Only Betsi Cadwaladr and Hywel Dda showed statistically significant reductions in average dt scores between 2007/08 and 2011/12 (Figure 5). In 2011/12 average dt ranged from 0.8 in Hywel Dda to 1.5 in Aneurin Bevan LHB. The dt for ABMU was 1.2 (95%CI: 1.1-1.3) which was within average range when compared with Wales, 1.1 (95%CI: 1.0-1.1).

**Figure 5 Average dt for 5 year olds, Welsh local health boards, 2007/08 compared with 2011/12**

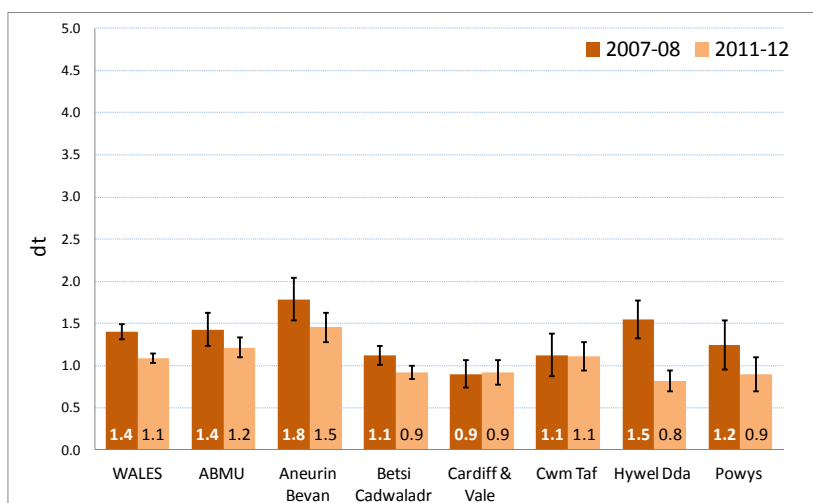
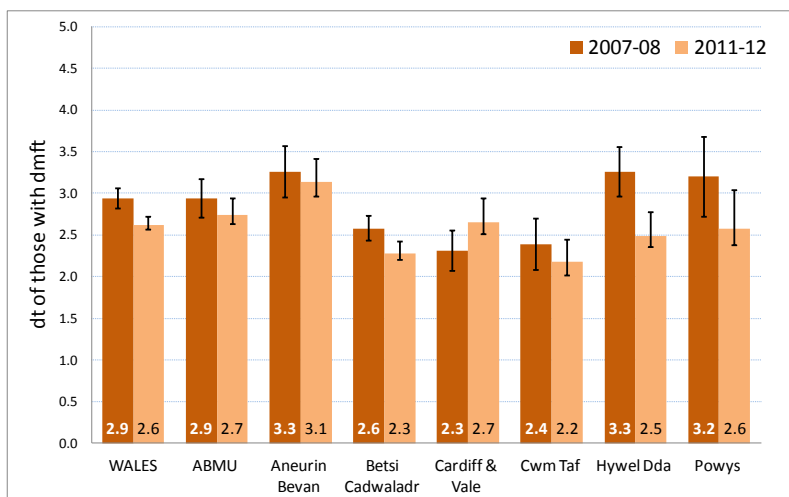


Figure 6 shows changes in average dt for those children with decay experience between the 2 survey years by health board. Only Hywel Dda and Betsi Cadwaladr experienced a statistically significant reduction. In 2011/12 the averages ranged from 2.2 in Cwm Taf to 3.1 in Aneurin Bevan. The 2011/12 average for ABMU was 2.7 (95%CI: 2.6-2.9) which was within the Welsh average range of 2.6 (95%CI: 2.5-2.7) for the same survey.

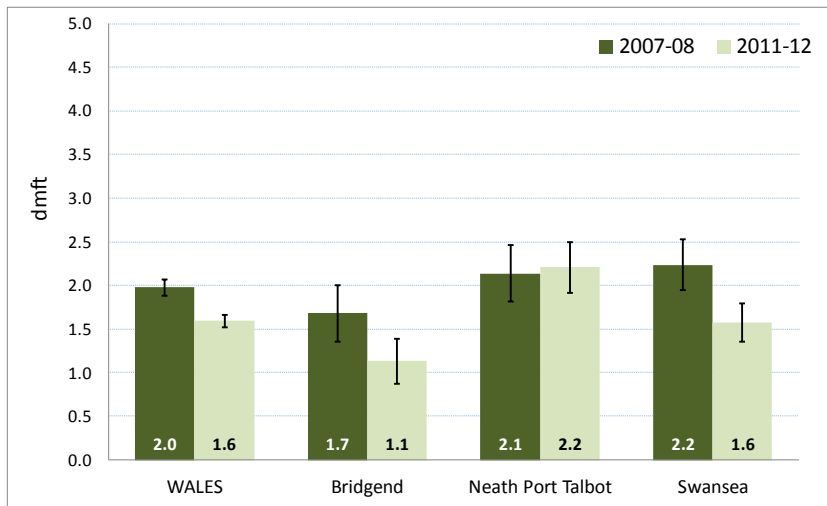
**Figure 6 Average dt of those with any experience of caries (dmft) for 5 year olds, Welsh local health boards, 2007/08 compared with 2011/12**



## Unitary Authorities (UAs)

### PREVENTABLE DECAY

**Figure 7 Average dmft for 5 year olds, in unitary authorities within Abertawe Bro Morgannwg University Health Board, 2007/08 compared with 2011/12**



Between 2007/08 and 2011/12 there was a statistically significant reduction in average dmft for Wales, the values were 2.0 (95%CI: 1.9-2.1) and 1.6 (95%CI: 1.5-1.7) respectively.

During 2007/08 average dmft values for all 3 ABMU unitary authorities were within the average range when compared with Wales for the same year.

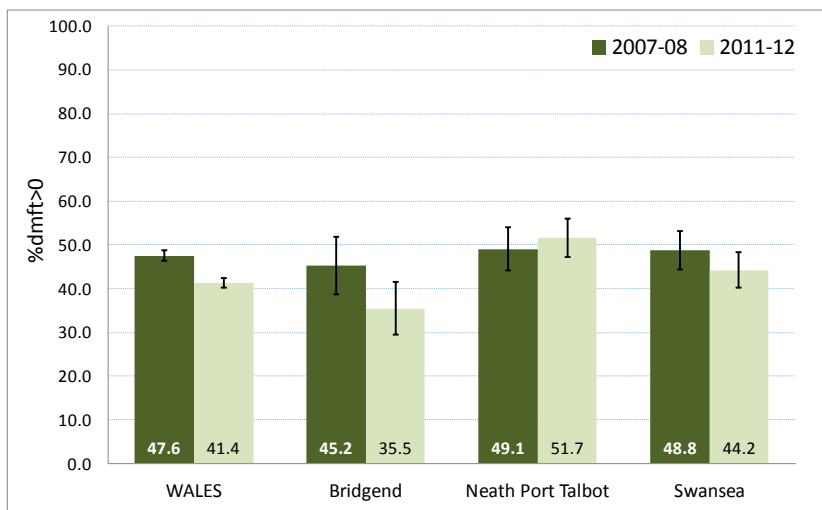
For Bridgend UA there was a notable reduction in average dmft between 2007/08 and 2011/12, from 1.7 to 1.1, but this difference was not statistically significant. However, the average dmft for the UA in 2011/12 (1.1—95%CI: 0.9-1.4) was statistically lower than the Welsh average for the same year (Figure 7).

Between survey years the average dmft for Neath Port Talbot showed little change (2007/08: 2.1; 2011/12: 2.2). The dmft for the UA in 2011/12 of 2.2 (95%CI: 1.9-2.5) was statistically higher than the Welsh average for the same year.

Swansea UA experienced a significant reduction in average dmft between 2007/08 (2.2, 95%CI: 1.9-2.5) and 2011/12 (1.6, 95%CI: 1.4-1.8). The dmft for both surveys was within average range when compared with the Welsh value for the same survey (Figure 7).

For Wales there was a significant reduction in the proportion of 5 year olds with decay (%dmft>0) between 2007-8 and 2011-12, the values were 47.6% (95%CI: 46.4%-48.7%) and 41.4% (95%CI: 40.3%-42.5%) respectively. It is encouraging that more children have no obvious decay experience by age 5 (Figure 8).

**Figure 8 Percentage of 5 year olds with caries experience (%dmft>0) in unitary authorities within Abertawe Bro Morgannwg University Health Board, 2007-8 compared with 2011/12**

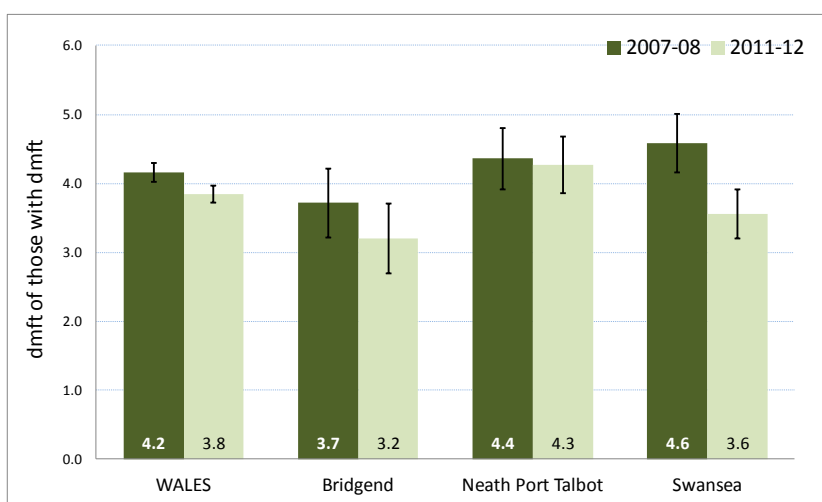


The %dmft>0 for Bridgend fell by almost 10% between 2007/08 and 2011/12, from 45.2% (95%CI: 38.6%-51.8%) to 35.5% (95%CI: 29.5%-41.5%). Because of the wide confidence intervals linked to smaller sample sizes, this change was not statistically significant. The %dmft>0 for Bridgend for both surveys fell within the average range for Wales (Figure 8).

The %dmft>0 for Neath Port Talbot showed little change over the two surveys (2007-08: 49.1%; 2011-12: 52.6%). The %dmft>0 for the UA in 2011/12 was 52.6% (95%CI: 47.2%-56.1%) statistically higher than the Welsh percentage for the same year.

The %dmft>0 for Swansea showed little change over the two surveys (2007/08: 48.8%; 2011/12: 44.2%); also it fell within the average range for Wales at both time points (Figure 8).

**Figure 9 Average dmft of those with caries experience for 5 year olds, in unitary authorities within Abertawe Bro Morgannwg University Health Board, 2007/08 compared with 2011/12**



Looking only at those children who have at least one decayed, missing or filled tooth illustrates the stark differences between children with decay and those without. The average dmft for a child with dmft is shown in Figure 9. For Wales overall, the reduction from 4.2 in 2007/08 (95% LCI 4.0 – 95% UCI 4.3) to 3.8 in 2011/12 (95%LCI 3.7 – 95% UCI 4.0) does suggest an improving position.

In Bridgend there was a reduction in average dmft of those with dmft between the two surveys, from 3.7 to 3.2, but this difference was not statistically significant. But, the average dmft for the UA in 2011/12 (3.2—95%CI: 2.7-3.7) was statistically lower than the Welsh average for the same year.

Between survey years the average dmft for those with dmft in Neath Port Talbot showed little change (2007/08: 4.4; 2011/12: 4.3). This variable fell within the average range for Wales for both surveys (Figure 9).

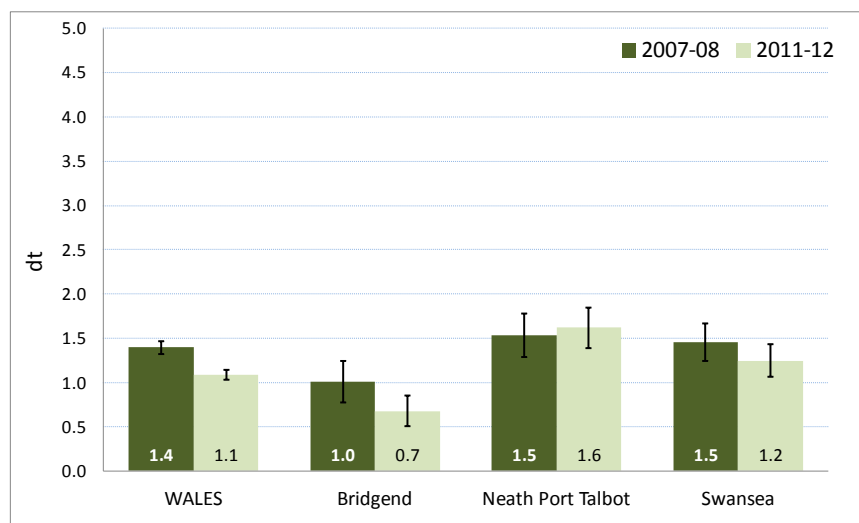
### ACTIVE DECAY

Between 2007/08 and 2011/12 there was a statistically significant reduction in average dt for Wales, the values were 1.4 (95%CI: 1.3-1.5) and 1.08 (95%CI: 1.0-1.1) respectively (Figure 10).

Bridgend experienced lower than average dt amongst 5 year olds when compared with Wales for both surveys. The UA experienced a reduction in dt between the 2 surveys from 1.0 (95%CI 0.8-1.2) to 0.7(95%CI 0.5-0.8) - but this was not a statistically significant difference (Figure 10).

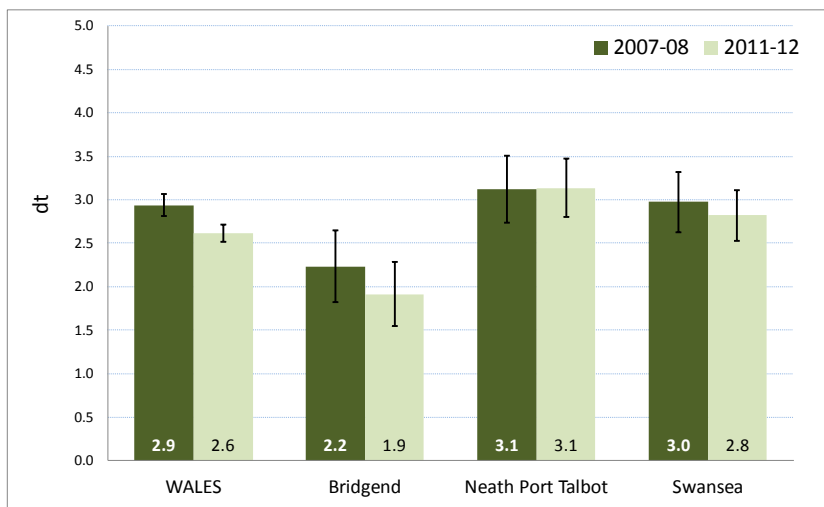
The average dt for Neath Port Talbot was 1.5 (95%CI 1.3-1.8) in 2007/08 and 1.6 (95%CI 1.49-1.8) in 2011/12. This small increase was not statically significant, but the 2011/12 average was statistically higher than the Welsh average.

**Figure 10 Average dt for 5 year olds, in unitary authorities within Abertawe Bro Morgannwg University Health Board, 2007/08 compared with 2011/12**



Swansea experienced a reduction in average dt for 5 year olds between 2007-8 and 2011-12 from 1.5 (95%CI 1.2-1.7) to 1.2 (95%CI 1.1-1.4); this reduction was not statistically significant (Figure 10).

**Figure 11 Average dt of those with any experience of caries (dmft) for 5 year olds, in unitary authorities within Abertawe Bro Morgannwg University Health Board, 2007/08 compared with 2011/12**



The average dt of children who have at least one decayed, missing or filled tooth for Wales fell between 2007/08 and 2011/12 from 2.9 (95%CI 2.8-3.1) to 2.6 (95% CI 2.5-2.7). This statistically significant improvement represented a reduction of almost 1/3rd of a tooth.

The dt experience of those with decay in Bridgend was lower than that of all Welsh 5 year olds for both surveys, 2.2 (95% CI: 1.8-2.6) in 2007/08 and 1.9 (95% CI: 1.5– 2.3) in 2011/12. The reduction, though, between the 2 surveys was not statistically significant (Figure 11).

The Neath Port Talbot average dt of those with decay almost plateaued between the 2 surveys, 3.1 (95%CI: 2.7- 3.5) and 3.1 (95% CI: 2.8-3.5) in 2007/08 and 2011/12 respectively. The 2011-12 average was statistically significantly higher than the Welsh average (Figure 11).

The Swansea average dt of those with decay showed little change between the 2 surveys, 3.0 (95%CI 2.6-3.32 in 2007/08 and 2.8 (95%CI: 2.5-3.1) in 2011/12—and on both occasions was within average range for Wales.

Overall, the unitary authority breakdowns of the survey data highlight improvements in Bridgend and to a lesser degree Swansea which are not present in Neath Port Talbot. Efforts need to be made to improve matters in Neath Port Talbot to ensure inequalities do not widen.



# Upper Super Output Areas (USOAs<sup>3</sup>)

Figure 12 Average dmft for 5 year olds in ABMU USOAs, as at 2011/12

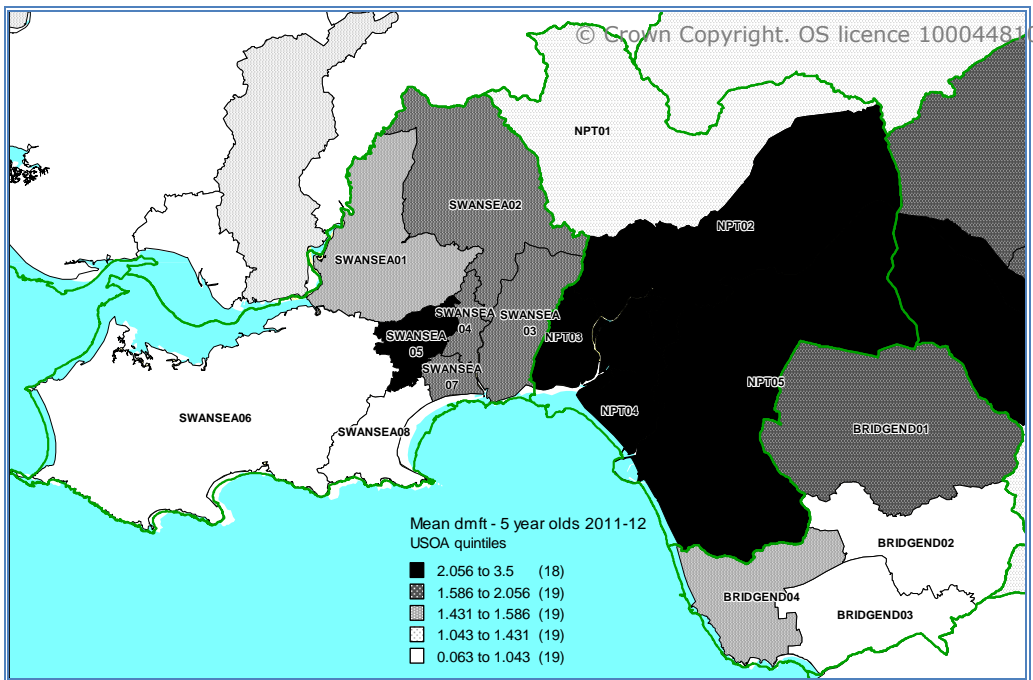
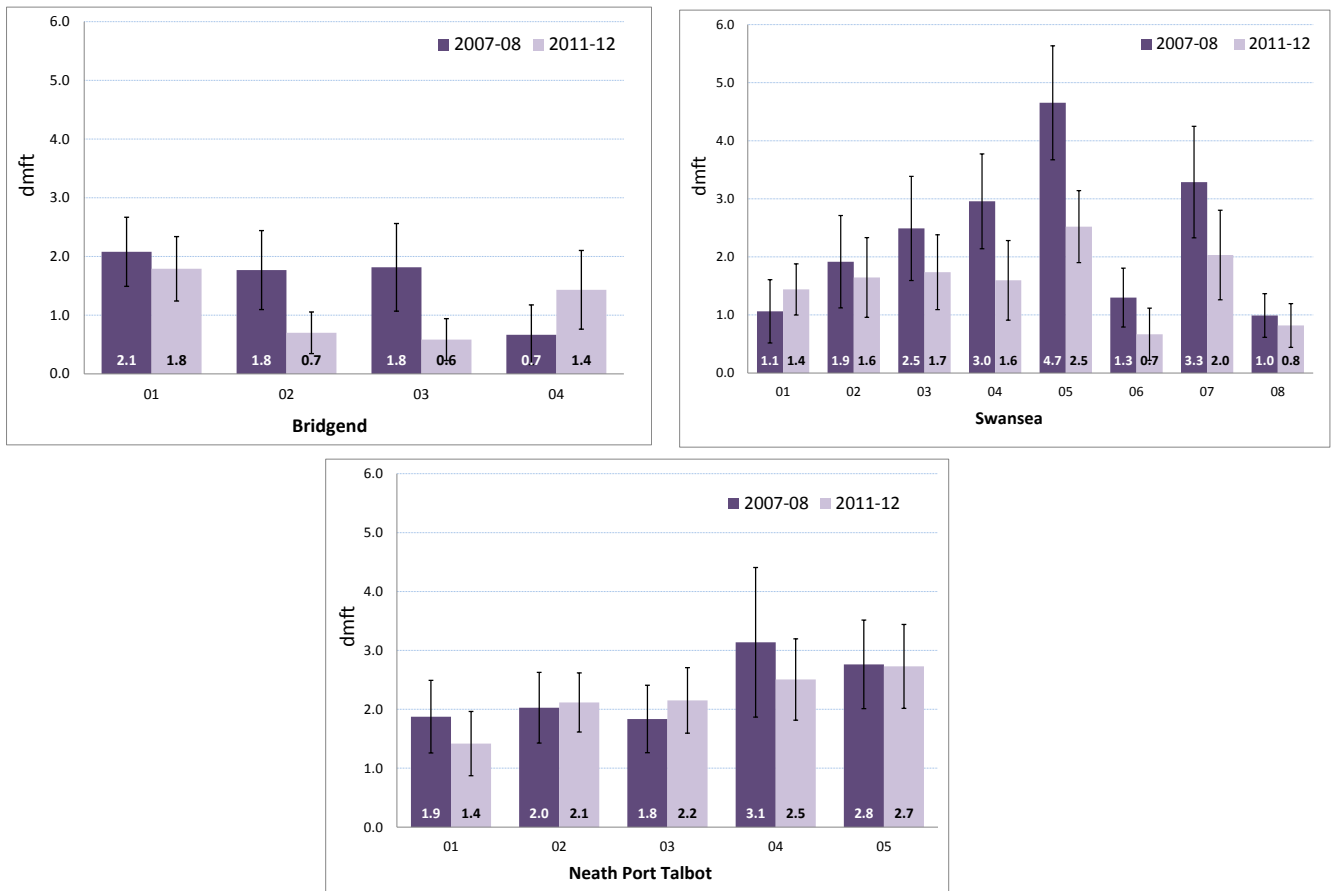


Figure 13 Average dmft for 5 year olds, for USOAs within Bridgend, Neath Port Talbot and Swansea 2007/08 compared with 2011/12



<sup>3</sup> USOAs constitute a statistical geography produced by the Data Unit Wales, based on a set of Super Output Areas produced by the Office for National Statistics. USOAs have been designed to provide a geography of a similar population size that is more detailed than local authority but still large enough to allow a wide range of statistics to be produced, with each of the 94 USOAs in Wales having an average population of 32,000 people.

Super Output Areas (SOAs) were designed to improve the reporting of small area statistics and are built up from groups of Output Areas. There are 3 categories of SOAs, i.e. lower, middle and upper. There are 94 Upper Super Output Areas (USOAs) in Wales (average population approx. 32,000).

Figure 12 presents a map of the average dmft for 5 year olds in 2011/12 for the USOAs in ABMU health board. Figure 13 highlights the changes in average dmft for these USOAs between 2007/08 and 2011/12.

There are 4 USOAs in Bridgend, the dmft in 2011-12 ranged from 0.6 in Bridgend 03 to 1.8 in Bridgend 01. There was a significant reduction in the average dmft for Bridgend 02, from 1.8 in 2007-8 (95%CI: 1.1-2.4) to 0.7 in 2011-12 (5% CI: 0.3-1.1). Furthermore, the 2011-12 average for Bridgend 02 was significantly lower than the Welsh average. The remaining 3 USOAs experienced changes in dmft between the 2 surveys but none of these were statistically significant.

There are 8 USOAs in Swansea. Swansea 05 which encompasses Fforestfach experienced a significant improvement in average dmft between 2007-8 and 2011-12; the averages were 4.7 (95%CI: 3.7-5.6) and 2.5 (95%CI: 1.9-3.1) respectively. Notable reductions were also experienced by Swansea 03 and Swansea 04, but these changes were not statistically significant. For Swansea USOAs the dmft ranged from 0.7 in Swansea 06 to 2.5 in Swansea 05 in 2011-12 (Figure 13).

The range in dmft experienced by the 5 USOAs in Neath Port Talbot was 1.4 in Neath Port Talbot 01 to 2.7 in Neath Port Talbot 05 in 2011-12. Both Neath Port Talbot 05 (mean 2.7, 95%CI 2.0-3.4) and Neath Port Talbot 04 (mean 2.5, 95%CI 1.8-3.2) experienced higher average dmft when compared with the Wales average for the same year. None of the Neath Port Talbot USOAs experienced a statistically significant change in average dmft between the 2 surveys (Figure 13) —a function of the smaller numbers of children taking part in the survey at this geographical boundary level.

## Inequalities in oral health, Wales and ABMU

**Table 1: Mean dmft & %dmft>0 for 5 year olds by quintiles of deprivation index, for Wales and Abertawe Bro Morgannwg University Health Board**

	5 year olds 2011-12				5 year olds 2007-08			
	WALES		Abertawe Bro Morgannwg University HB		WALES		Abertawe Bro Morgannwg University HB	
	mean dmft	%dmft>0	mean dmft	%dmft>0	mean dmft	%dmft>0	mean dmft	%dmft>0
Least deprived	1.03	31.3	0.99	30.8	1.16	34.5	1.15	33.8
Second least deprived	1.19	32.8	1.43	37.8	1.56	41.3	1.4	35.8
Middle deprived	1.50	41.4	1.68	46.7	1.77	44.1	1.87	44.5
second most deprived	1.88	48.3	1.93	52.4	2.04	49.2	2.29	52.7
Most deprived	2.16	51.5	2.48	58.3	2.65	57.6	3.05	62.7
All within area	1.59	41.4	1.64	44.2	1.98	47.6	2.14	48.5
Ratio - most deprived:middle deprived	1.44	1.24	1.48	1.25	1.50	1.31	1.63	1.41

Although children's oral health has improved on average, inequalities remain. Caries, like many other diseases increases with social deprivation. In Wales, we have the child poverty targets to monitor inequalities in oral health.

As outlined on page 1, the overall aim is to improve the average dmft and the % with caries for the most deprived fifth so that by 2020 they match caries levels experienced by the middle fifth, when the baseline was set in 2007-08. Children from more deprived areas within ABMU have experienced improvements in oral health between the 2 survey periods—similar to Wales as a whole (page 1). The ratios of the most deprived : middle deprived have fallen for both average dmft and the %dmft>0, indicative of a narrowing of inequalities, both for Wales and ABMU.

However, the average dmft and the %dmft>0 for the most deprived fifth in ABMU in 2011/12 were 2.48 and 58.3% — there is considerable room for improvement if these are to meet the Wales targets for 2020, which are 1.77 and 44.1% respectively. It is important to note that the targets are all Wales targets—we do not have health board targets—but we can use them locally as a guide.

---

## USEFUL WEBSITES

Welsh Oral Health Information Unit	<a href="http://www.cardiff.ac.uk/dentl/research/themes/appliedclinicalresearch/epidemiology/oralhealth/index.html">http://www.cardiff.ac.uk/dentl/research/themes/appliedclinicalresearch/epidemiology/oralhealth/index.html</a>
PHW observatory	<a href="http://www.wales.nhs.uk/sitesplus/922/home">http://www.wales.nhs.uk/sitesplus/922/home</a>
British Association for the Study of Community Dentistry	<a href="http://www.bascd.org/">http://www.bascd.org/</a>
Designed to Smile	<a href="http://www.designedtosmile.co.uk/">http://www.designedtosmile.co.uk/</a>
Child Dental Health survey data	<a href="http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publicationsandstatistics/Bulletins/Chiefdentallofficersbulletin/Browsable/DH_4860753">http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publicationsandstatistics/Bulletins/Chiefdentallofficersbulletin/Browsable/DH_4860753</a>
Adult Dental Health survey data	<a href="http://www.hscic.gov.uk/pubs/dentalsurveyfullreport09">http://www.hscic.gov.uk/pubs/dentalsurveyfullreport09</a>
Health Maps Wales	<a href="http://www.infoandstats.wales.nhs.uk/page.cfm?orgid=869&amp;pid=40976">http://www.infoandstats.wales.nhs.uk/page.cfm?orgid=869&amp;pid=40976</a>