

Aneurin Bevan Health Board Health Profile 2013

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

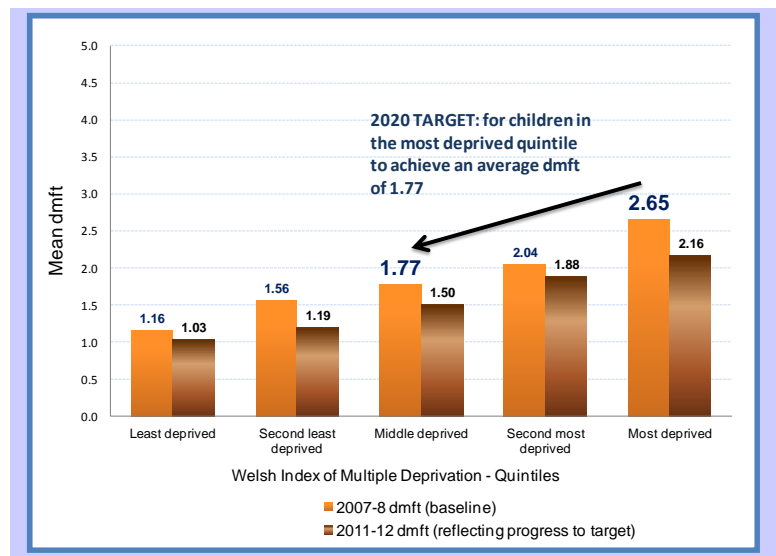
The 2013 Oral Health Profile for Aneurin Bevan Health Board presents oral health data for school year 1 (approximately 5 years of age) generated from a survey undertaken during the winter of 2011/12 and compares it with the previous survey carried out in 2007/08. This profile focuses on local health 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 Welsh Oral Health Information Unit (WOHIU) 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 dmft¹ for 5 year olds in 2007/08 and 2011/12 in Wales, by quintiles of the Welsh Index of Multiple Deprivation

Key messages

- ◆ Prevalence of decay has fallen in Aneurin Bevan but 2011/12 levels remain higher than Wales overall
- ◆ Blaenau Gwent has shown little improvement in child oral health & has higher than average experience of decay when compared with all Wales
- ◆ Inequalities in oral health have improved slightly but there is considerable room for improvement to meet 2020 targets



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 caries levels experienced by the middle fifth in 2007/08, by 2020. For the most deprived fifth of 5

¹ 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.

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 Aneurin Bevan targets**. But, this oral health profile does give an indication of changes to oral health within Aneurin Bevan.

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 Aneurin Bevan the averages were 2.4 (95%CI² 2.1-2.6) and 2.0 (95%CI: 1.8-2.2) respectively. The 2011/12 Aneurin Bevan average was statistically higher when compared with the Welsh average for the same year (1.6, 95%CI: 1.5-1.7).

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

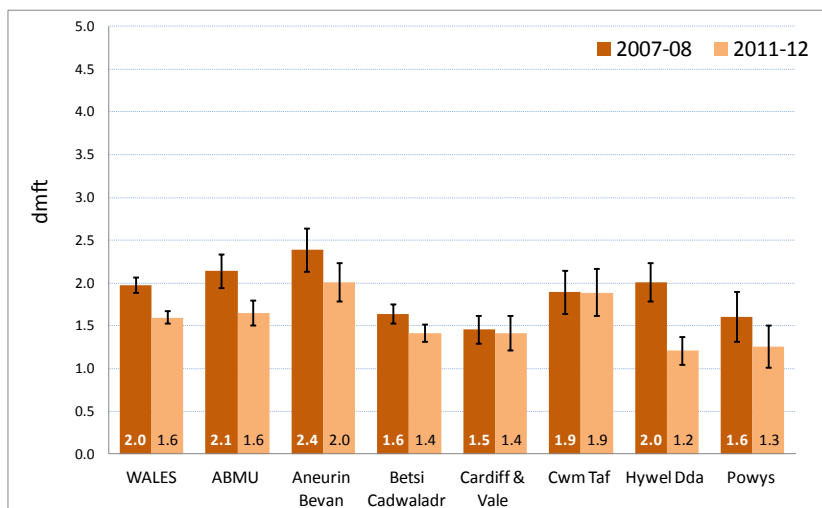
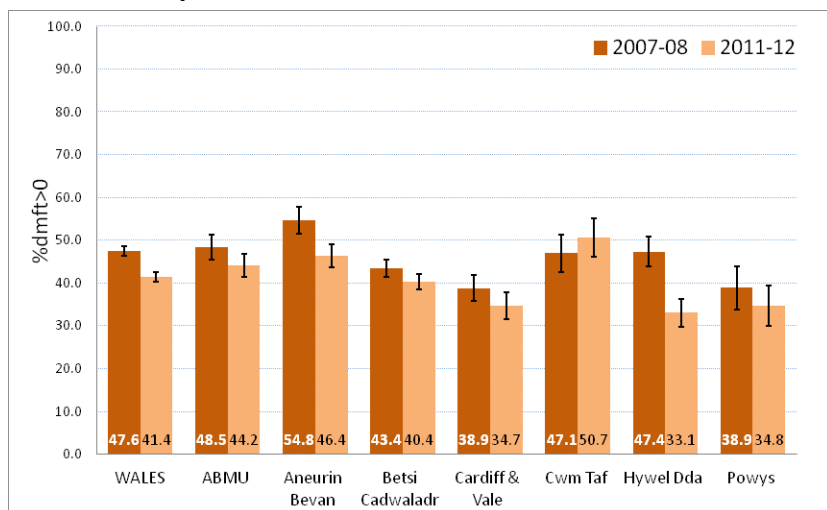


Figure 3 illustrates the proportion of children with at least one decayed tooth (%dmft>0) by LHB in 2007/08 and 2011/12. Although there appears to be a general tendency (except in Cwm Taf) for a reduction in the proportion of children with decay experience, the changes only reach statistical significance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

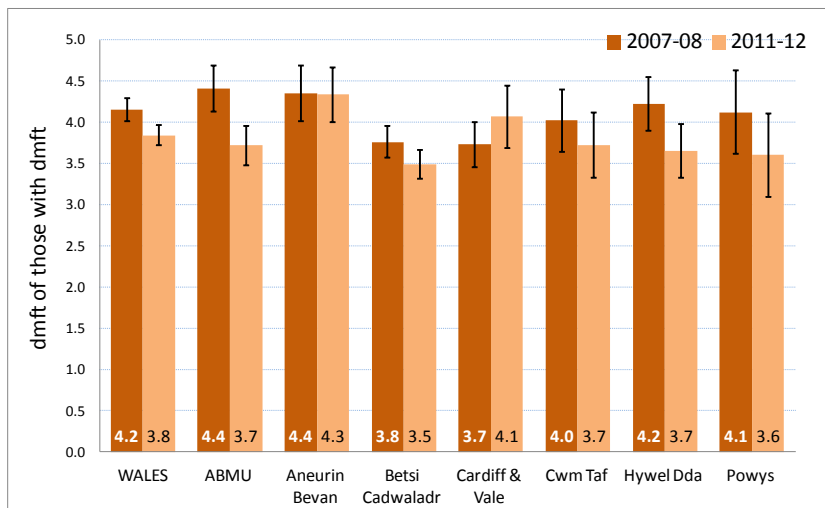
² 95%CI represents the 95% lower and upper confidence intervals. A confidence interval constitutes a range of values for a variable of interest, e.g. mean dmft, constructed so that this range has a specified probability of including the true value of the variable. So a 95% confidence interval has a 95%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



In Aneurin Bevan, there was an 8% reduction in the proportion of children with at least one decayed tooth from 54.8 (95%CI: 51.7%-57.9%) in 2007/08 to 46.4% (95%CI: 43.7%-49.0%) in 2011/12. Despite this, the 2011/12 Aneurin Bevan prevalence was significantly higher than the overall Welsh experience (Figure 3).

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 for health boards 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 average dt for 5 year olds living in Aneurin Bevan was significantly higher than the Welsh average for both surveys – in 2011/12 the average for Wales was 1.1 (95%CI: 1.0-1.1) compared with the health board average of 1.5 (95%CI: 1.3-1.6).

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

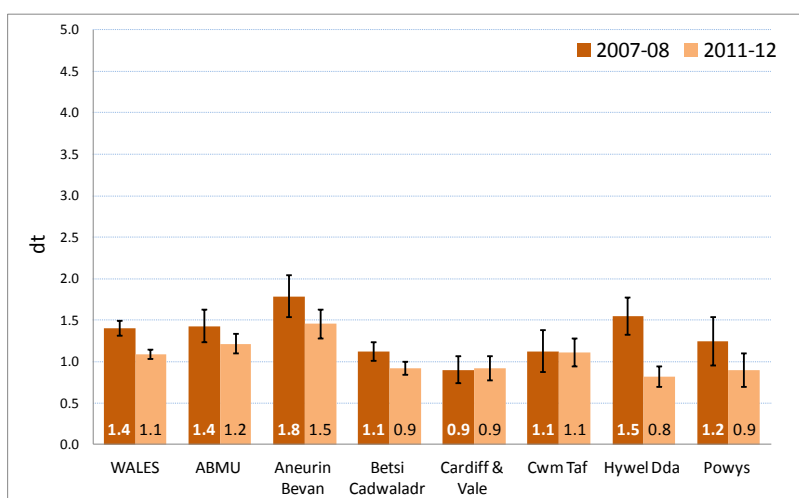
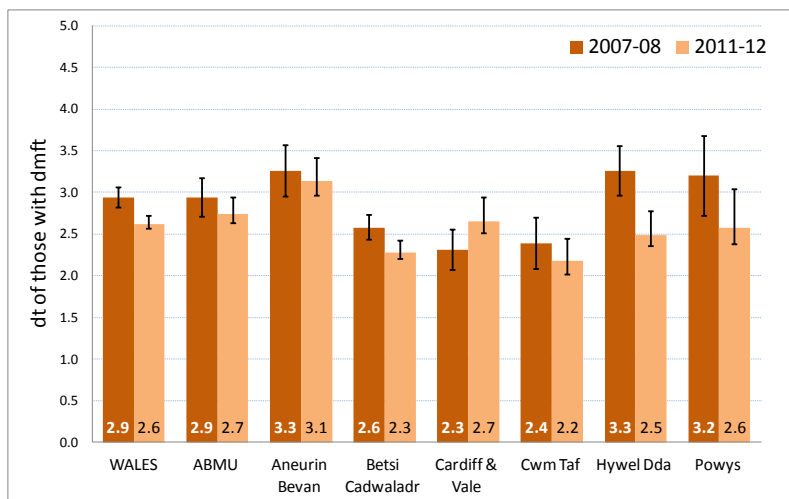


Figure 6 shows changes in average dt for those children with any experience of decay(dmft) between the 2 survey years by health board. Only Hywel Dda and Betsi Cadwaladr experienced a statistically significant reduction. In 2011/12 the averages ranged from 2.2 in Cwm Taf to 3.1 in Aneurin Bevan. In the same year, the average dt for those children with decay experience in Aneurin Bevan was significantly higher than the Welsh average. The average for Wales was 2.6 (95%CI: 2.5-2.7) compared with the health board average of 3.1 (95%CI: 2.9-3.4).

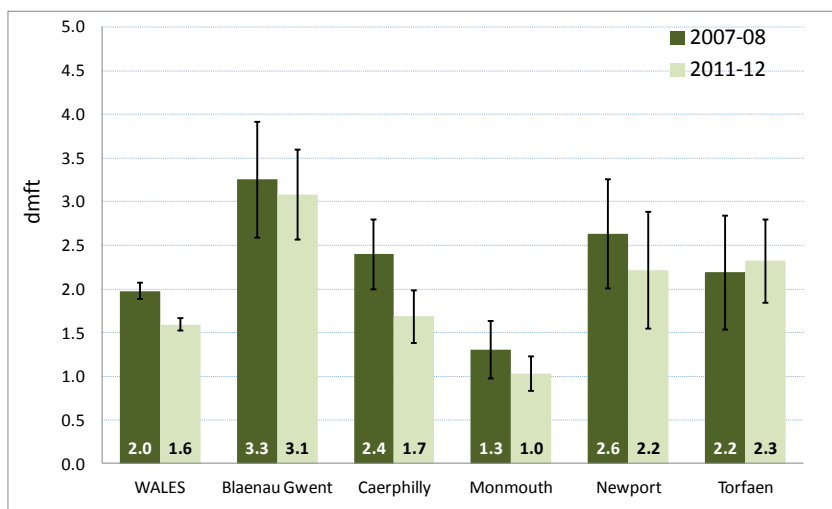
Figure 6 Average dt of those with any experience of caries (dmft) for 5 year olds, Welsh local health boards, 2007/08 compared with 2011/12



Unitary Authorities (UAs)

PREVENTABLE DECAY

Figure 7 Average dmft for 5 year olds, in unitary authorities within Aneurin 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.

The average dmft in 2011/12 for Aneurin Bevan unitary authorities ranged from 1.0 in Monmouth to 3.1 in Blaenau Gwent. The average for Monmouth (1.0, 95% CI: 0.8-1.2) was statistically lower when compared with the Welsh average for that same year, whereas the average for Blaenau Gwent was statistically higher (3.1, 95%CI: 2.6-3.6).

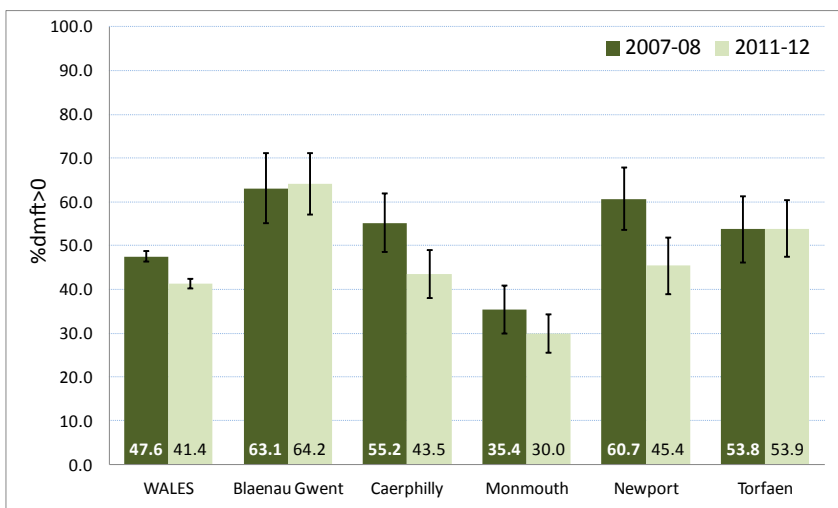
Caerphilly UA experienced a statistically significant reduction in average dmft between 2007/08 and 2011/12, from 2.4 (95%CI: 2.0-2.8) to 1.7 (95%CI: 1.4-2.0, Figure 7).

For Wales there was a significant reduction in the proportion of 5 year olds with decay (%dmft>0) between 2007/08 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).

The %dmft>0 ranged from 30.0% in Monmouth to 64.2% in Blaenau Gwent in 2011/12 (Figure 8). Whilst the prevalence experienced by 5 year olds in Monmouthshire was statistically lower than for Wales as a whole, the prevalence for Blaenau Gwent was statistically worse.

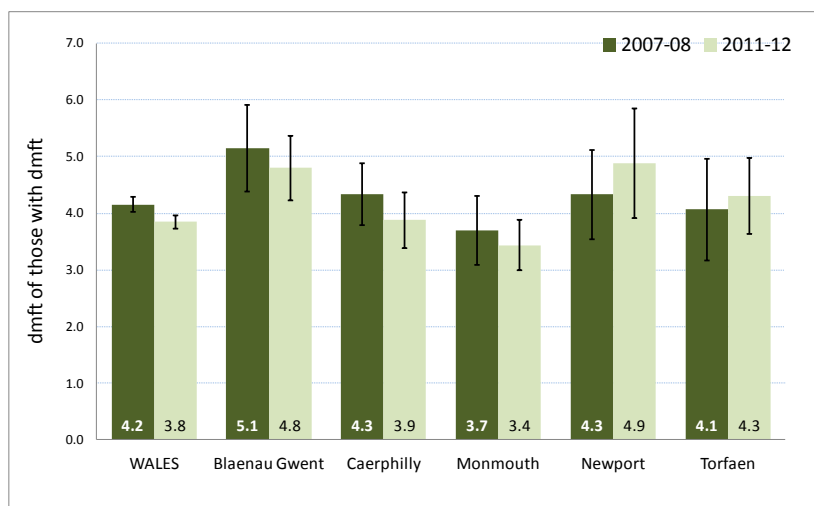
Caerphilly, Monmouth and Newport experienced reductions in dmft prevalence between 2007/08 and 2011/12, but it was only the latter unitary authority which experience a statically significant reduction, from 60.6% (95%CI: 53.6% - 67.8%) to 45.4% (95%CI: 38.9%-52.9%).

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



The %dmft>0 for Torfaen for both surveys was statistically higher when compared with the Welsh percentage. Further, the %dmft>0 for the UA plateaued at 53.8% in 2007/08 (95%CI: 46.2%-61.4%) and 53.9% in 2011/12 (95%CI: 47.4%-60.4%, Figure 8).

Figure 9 Average dmft of those with caries experience for 5 year olds, in unitary authorities within Aneurin Bevan 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 2011/12 the average dmft of those with dmft ranged from 3.4 in Monmouth to 4.9 in Newport. There were fluctuations in the averages for all Aneurin Bevan unitary authorities between 2007/08 and 2011/12 but none of these were statistically significant (Figure 9).

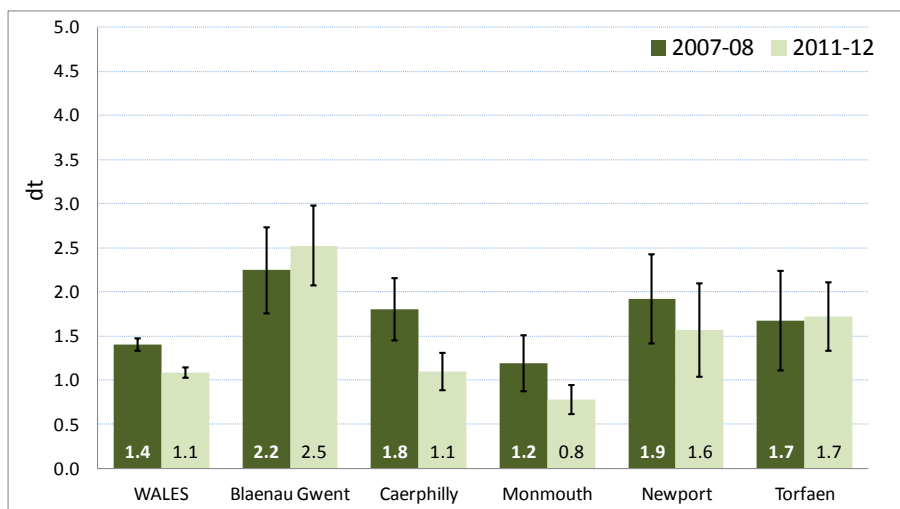
The experience of children in Blaenau Gwent for this characteristic was significantly higher than the Welsh experience at both time points (Figure 9).

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).

The average dt experience for Aneurin Bevan unitary authorities in 2011/12 ranged from 0.8 in Monmouth to 2.5 in Blaenau Gwent (Figure 10). The average dt for Blaenau Gwent was considerably higher than the Welsh averages for both surveys; in 2011/12 it was more than double at 2.5 (95%CI: 2.1-3.0).

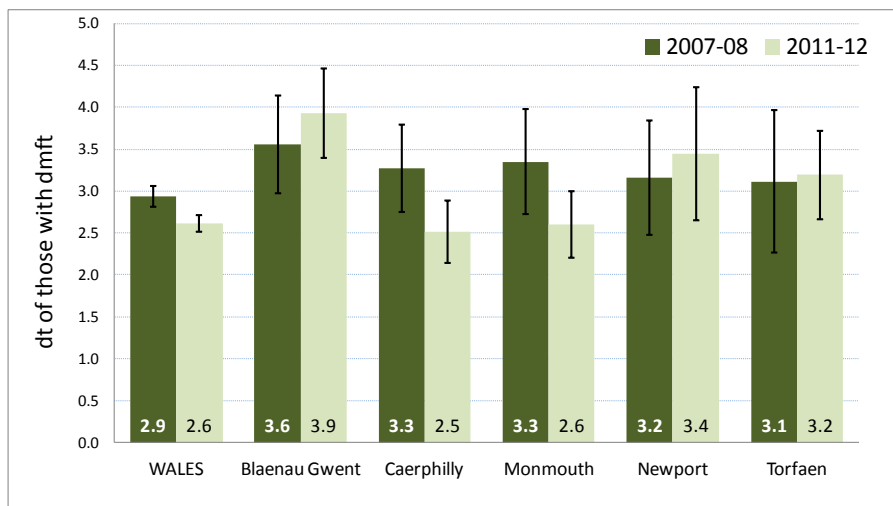
Figure 10 Average dt for 5 year olds, in unitary authorities within Aneurin Bevan Health Board, 2007/08 compared with 2011/12



There were reductions in average dt in Newport, Monmouth and Caerphilly, but the latter was the only unitary authority to display a statistically significant reduction (2007/08: 1.8, 95%CI: 1.5-2.2; 2011/12: 1.1, 95%CI: 0.9-1.3, Figure 10).

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 (Figure 11).

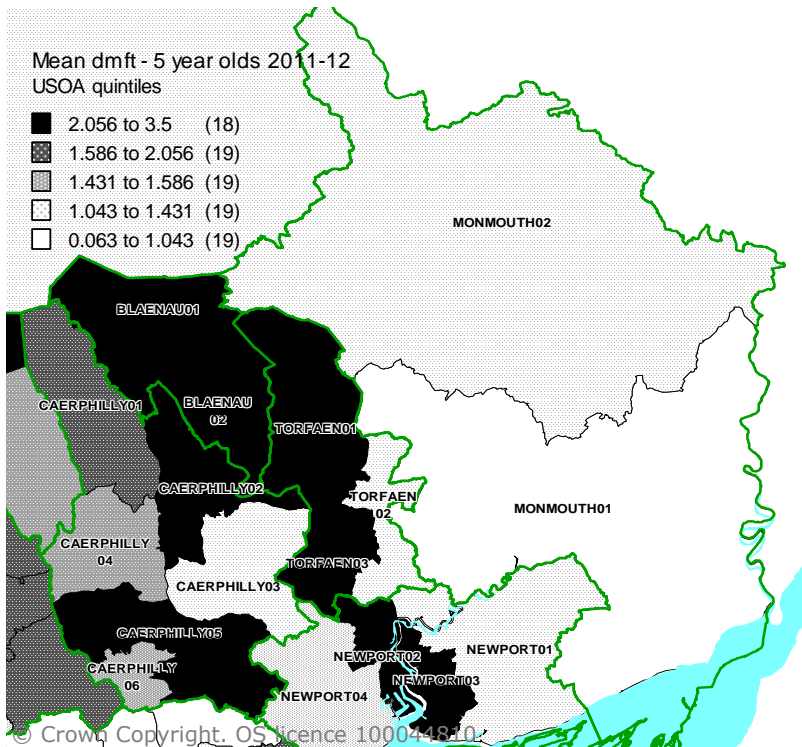
Figure 11 Average dt of those with any experience of caries (dmft) for 5 year olds, in unitary authorities within Aneurin Bevan Health Board, 2007/08 compared with 2011/12



The 2011/12 average dt of those with caries experience ranged from 2.5 in Caerphilly to 3.9 in Blaenau Gwent (Figure 11). Again, Blaenau Gwent's experience was significantly worse than the Welsh experience at both time points; for example in 2011/12 the average was 3.9 (95% CI: 3.4-4.5, Figure 11). Caerphilly and Monmouth both experienced a reduction of approximately 4/5ths of a tooth, but these reductions were not statistically significant – a function of the smaller numbers of children taking part in the survey at unitary authority level (Figure 11).

Upper Super Output Areas (USOAs³)

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



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 Aneurin Bevan. Figure 13 highlights the changes in average dmft for these USOAs between 2007/08 and 2011/12.

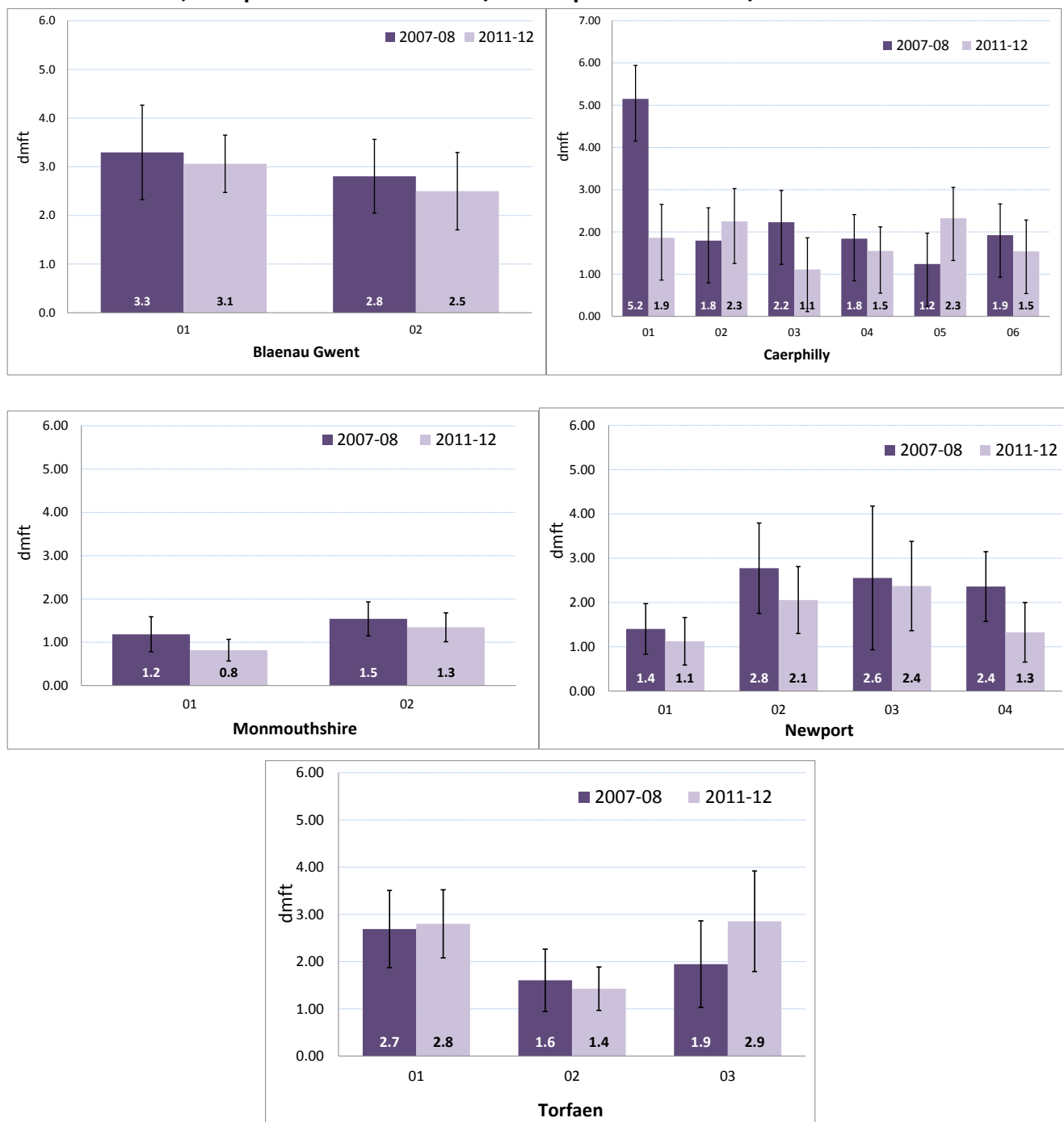
The average dmft for the two USOAs in Blaenau Gwent have remained reasonably constant between 2007/08 and 2011/12. In 2011/12 the values were 3.1 and 2.5 for Blaenau Gwent 01 and Blaenau Gwent 02 respectively (Figure 13).

There are six USOAs in Caerphilly, the dmft in 2011/12 ranged from 1.1 in Caerphilly 03 to 2.3 in both Caerphilly 02 and 05. Caerphilly 01 appears to have experienced a reduction in average dmft of just over 3 teeth, from 5.2 in 2007/08 to 1.9 in 2011/12. As there is potential for survey methodological errors, we need to wait till the next survey (2015/16) to confirm this trend.

The average dmft for the two USOAs in Monmouthshire have remained fairly constant between 2007/08 and 2011/12. In 2011/12 the values were 0.8 and 1.3 for Monmouthshire 01 and Monmouthshire 02 respectively (Figure 13).

³ 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.

Figure 13 Average dmft for 5 year olds, for USOAs within Blaenau Gwent, Caerphilly, Monmouthshire, Newport and Torfaen 2007/08 compared with 2011/12



There were fluctuations in the average dmft for the 4 USOAs in Newport, but none of these were statistically significant. The 2011/12 range in average dmft was 1.1 in Newport 01 to 2.4 in Newport 03.

The average dmft for USOAs in Torfaen ranged from 1.4 in Torfaen 02 to 2.9 in Torfaen 03 in 2011/12. Torfaen 03 experienced an increase in average dmft of one whole tooth between 2007/08 and 2011/12 - but because of the smaller numbers participating within USOAs this change was not statistically significant (Figure 13).

Inequalities in oral health, Wales and Aneurin Bevan

Table 1: Mean dmft & %dmft>0 for 5 year olds by quintiles of deprivation index, for Wales and Aneurin Bevan Health Board

	5 year olds 2011-12				5 year olds 2007-08			
	WALES		Aneurin Bevan		WALES		Aneurin Bevan	
	mean dmft	%dmft>0	mean dmft	%dmft>0	mean dmft	%dmft>0	mean dmft	%dmft>0
Least deprived	1.0	31.3	0.9	31.3	1.2	34.5	1.3	36.7
Second least deprived	1.2	32.8	1.0	26.0	1.6	41.3	1.9	43.8
Middle deprived	1.5	41.4	1.6	40.0	1.8	44.1	1.8	45.2
second most deprived	1.9	48.3	2.2	48.6	2.0	49.2	2.4	55.9
Most deprived	2.2	51.5	2.5	54.8	2.7	57.6	3.1	66.9
All within area	1.6	41.4	2.0	46.4	2.0	47.6	2.4	54.8
Ratio - most deprived:middle deprived	1.4	1.2	1.5	1.4	1.5	1.3	1.7	1.5

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 experience 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 Aneurin Bevan have experienced small changes in caries experience relative to the less deprived groups. The ratio of the most deprived : middle deprived for both average dmft and the %dmft>0 has reduced slightly (Table 1) – inequalities for Aneurin Bevan are showing signs of improvement.

However, the average dmft and the %dmft>0 for the most deprived fifth in Aneurin Bevan in 2011/12 were 2.4 and 54.8% — 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	http://www.cardiff.ac.uk/dentl/research/themes/appliedclinicalresearch/epidemiology/oralhealth/index.html
PHW observatory	http://www.wales.nhs.uk/sitesplus/922/home
British Association for the Study of Community Dentistry	http://www.bascd.org/
Designed to Smile	http://www.designedtosmile.co.uk/
Child Dental Health survey data	http://webarchive.nationalarchives.gov.uk/+www.dh.gov.uk/en/Publicationsandstatistics/Bulletins/Chiefdentallofficersbulletin/Browsable/DH_4860753
Adult Dental Health survey data	http://www.hscic.gov.uk/pubs/dentalsurveyfullreport09
Health Maps Wales	http://www.infoandstats.wales.nhs.uk/page.cfm?orgid=869&pid=40976