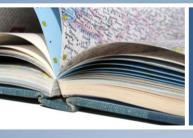


# Wider Determinants of Health



# Cardiff and Vale University Health Board



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### 1 Introduction

### 1.1 Factors affecting health

Health is affected, positively and negatively, by many factors. At an individual level there are fixed biological factors, such as age, sex and genetic (or inherited) makeup, and potentially modifiable lifestyle factors, such as smoking, diet and exercise.

The society within which individuals live can influence their health, with involvement in social and community networks, including friendships, contact with relatives and supportive community interactions, playing an important role in maintaining health.

Then, at a higher level again, are the wider determinants of health, or the "causes of the causes", the environmental, social and economic contexts of lives. Factors such as education, employment, income and housing all influence health both directly and indirectly<sup>1</sup>.

Many of these wider determinants of health are both inter-related and beyond the direct control of individuals. For example, an individual with few qualifications is more likely to be unemployed or to have a low income, which in turn limits their housing choice. Similarly there is evidence of a link between unemployment and health whereby ill health may be caused by, or result from, unemployment<sup>2</sup>.

All of these circumstances may act to influence what is often wrongly perceived as solely a personal lifestyle choice. For example, whilst smoking may appear to an individual's lifestyle choice, it is possible that their decision to smoke is pushed by the effects of the context of their lives and is in effect a response to those stresses<sup>3</sup>.

It follows then that any attempt to tackle poor health must address the wider contextual factors, rather than simply looking to influence individuals and their specific behaviours in isolation. As such, "building health into all policies and all policies into health" is rightly the first of the seven action areas of "Fairer Health Outcomes For All", the Welsh Government's strategic action plan to reduce inequities in health<sup>4</sup>.

### 1.2 Purpose of this report

The purpose of this brief report is not to establish associations between the wider determinants of health and health outcomes themselves, this has been done elsewhere<sup>1</sup>. Nor is the purpose of this report to prescribe actions to tackle the wider determinants of health.

Rather, this report simply describes a number of indicators of the wider determinants of health at a small area level for each of the health boards in Wales. It has been produced by the Public Health Wales Observatory specifically to illustrate the variation in such indicators at small area level within health boards and their constituent local authorities.

Although a purely descriptive report, it is hoped that it will be of interest and use to the local Director of Public Health, the local Public Health Team and their stakeholders.

### 1.3 Content of this report

All bar one of the indicators are presented at middle super output area (MSOA). There are 413 MSOAs in Wales with an average population of approximately 7,000 people. Therefore MSOAs provide a reasonably sized population for analyses whilst retaining a local small area focus.

In part, the (un)availability of determinants of health data at small area level has dictated the selection of the indicators presented here. In some instances, such as community safety, there were multiple alternatives with no definitive single indicator. In such circumstances a pragmatic choice had to made, with the reality being that similar indicators will show a similar pattern. In other instances, such as housing, there was no up to date information available pending the release of 2011 Census data.

The indicators are presented under the following chapter headings: income, housing, employment, education and community safety. For most of the indicators, the following are presented:

- an overview of the meaning of the indicator and a description of the patterns observed within each area;
- a map of all the MSOAs by fifths of equal range within the health board area;
- a chart for each local authority within the health board;
- a chart of all local authorities across Wales.

In addition, an Indicator Guide is available providing further information on each indicator.

The one education indicator that was not available at MSOA level was the percentage of school leavers not in education, employment or training (NEET). This indicator is presented at local authority level only.

Where possible, confidence intervals are shown around the indicators. Confidence intervals are indications of the random variation that would be expected around these indicators. Unfortunately, in many instances it was not possible to provide confidence intervals due to the nature of the data. Confidence intervals and MSOAs are described in more detail in Appendix A.

Appendix B comprises a series of local authority area maps showing the MSOA boundaries for each local authority within the health board area.

Further information on health inequalities and the relationship of health to deprivation can be found in the Observatory topic page 'Inequalities and inequities' available: <a href="http://www.wales.nhs.uk/sitesplus/922/page/49811">http://www.wales.nhs.uk/sitesplus/922/page/49811</a>.

### 1.4 Fair Society, Healthy Lives

The Marmot Review, Fair Society, Healthy Lives, published in 2010, suggested a number of indicators that would support the monitoring of work that aimed to tackle health inequalities, which arise largely from the wider determinants of health.

Joint work by the London Health Observatory and The Marmot Review Team led to the publication of 10 such indicators for England<sup>5</sup>, shown below with details of the equivalent indicators for Wales.

Marmot Indicators for Local Authorities in England	Equivalent indicators for Wales			
1 Male life expectancy at birth				
2 Inequality in male life expectancy	Produced and published for Wales by the Public Health Observatory for Wales in the report 'Measuring Inequalities 2011: Trends in mortality and life expectancy in			
3 Inequality in male disability free life expectancy				
4 Female life expectancy at birth	Wales', available at			
5 Inequality in female life expectancy	http://www.wales.nhs.uk/sitesplus/922/pa			
6 Inequality in female disability free life expectancy	ge/58379			
7 Children achieving a good level of development at age 5	There is no current equivalent measure in Wales. A measure of achievement at the end of compulsory secondary education is presented here instead.			
8 Young people not in employment, education or training (NEET)	Different recording systems in England and Wales mean the NEET data presented here are slightly different to those in England. However they are very similar so remain of use.			
9 People in households in receipt of means tested benefit (%)	In England this is used as part of IMD. Here a similar measure is shown; percentage of working age population in receipt of employment related benefits, which itself is used in the WIMD.			
10 Inequality in receipt of means-tested benefits	Not possible here as WIMD is based on LSOA whereas MSOA is the geographical level of this report.			

### 2 Income

### 2.1 Household poverty

### **Definition**

An experimental modelled estimate of the proportion of households living in poverty, after housing costs has been deducted. This is a relative measure of poverty as it is defined here as having less than 60% of the UK median net equivalised household income.

### **About**

Low income and poor health are strongly associated, with low income leading to poor health and poor health leading to low income. A low income is likely to reduce the household's ability to access or maintain key aspects such as healthy food and warm accommodation. Low income is also likely to reduce societal participation and limit access to enabling resources and choices. Those on low incomes are more likely to engage in health damaging behaviours, such as smoking and eating high calorie foods, as coping mechanisms or short term fixes<sup>6</sup>.

More detailed information on this indicator can be found in the **Indicator Guide**.

### **Pattern**

Whilst it must be remembered that these are model based estimates, across the health board there was more than a threefold difference in the proportion of households estimated to be living in poverty from 13.3% (Vale of Glamorgan MSOA 010) to 50.8% (Cardiff MSOA 039).

Estimates at the local authority level were not available but the median MSOA percentages suggest that the percentage for Cardiff will be higher than the percentage for the Vale of Glamorgan.

The map suggests higher levels clustering in the south and east of Cardiff. More isolated higher levels were estimated for the Ely, Trowbridge, St Mellons, Grangetown, Cathays, Blackweir and Riverside areas of Cardiff; and the Gibbonsdown and Dyfan areas of the Vale of Glamorgan.

# Produced by Public Health Wales Observatory, using model-based estimates (ONS) Produced by Public Health Wales Observatory, using model-based estimates (ONS) ©Crown Copyright and database right 2012. Ordnance Survey 100044810

# Percentage of households living in poverty in Cardiff and Vale University Health Board area, 2007/08

Produced by Public Health Wales Observatory, using model-based estimates (ONS)

MSOA EASR with 95% confidence interval

Ca	ardiff	
	039	50.8
	013	44.6
	044	41.3
	032	39.7 ├────
	042	39.6
	016	38.3
	037	38.1
	041	36.1
	007	34.6
	009	34.4
	045	33.5
	047	32.9
	015	32.1
	036	31.6
	043	31.6
	045	31.5
	040	31.2
	023	31.0
	038	30.7
	028	29.9
	017	
	031	29.6
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₹		20.9
MSCA	005	-
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	025	26.3 - 0
	040	25.4
	033	L IIL
	010	22.7 — 0—1
	011	22.6 — 0 — 1
	035	22.1 — 0—
	029	20.8 — 0—1
	020	20.1 — 0 — 1
	024	19.2
	034	18.8 — 0 — 1
	018	17.5 ├──
	019	16.9 — 0— 1
	026	16.4 —○—
	021	15.9 —○—
	800	15.8 ├──
	012	15.6 ├──
	003	15.3 ○
	006	15.1 ─────
	004	15.0 —○—
	014	14.7 ├──
	002	13.4 ├──
	001	13.3 ├──
		% of households

		_	
The	Vale	Λf	Glamorgai
ıne	vale	OI.	Giailloi Ga

007	39.1
012	33.0
013	32.9
009	28.6
015	27.8
004	23.2
014	21.1 ├────
005	20.9 ├───
011	20.8 ├───
800	20.6 ├───
006	19.5 ├──
003	17.1 ├──
002	13.6⊢○─
001	13.3 ⊢O─
010	13.3 ├──

% of households

### 3 Housing

### 3.1 No central heating

### **Definition**

The percentage of all people living in households which had no central heating in any room or rooms.

### **About**

The inability to adequately heat a house can have major health consequences. The cold itself can exacerbate many respiratory and circulatory problems, especially in the elderly, and is likely to contribute to excess winter deaths. Inadequate heating causes dampness and condensation within a house. Dust mites and fungal spores proliferate in such conditions, which then exacerbate respiratory problems such as asthma, wheezing and other lung inflammations<sup>7</sup>.

This indicator is taken from the 2001 Census and is hence out of date. However, in the absence of any other national housing data, and pending the release of the 2011 Census data, it is the most up to date source of housing data. More detailed information on this indicator can be found in the Indicator Guide.

### **Pattern**

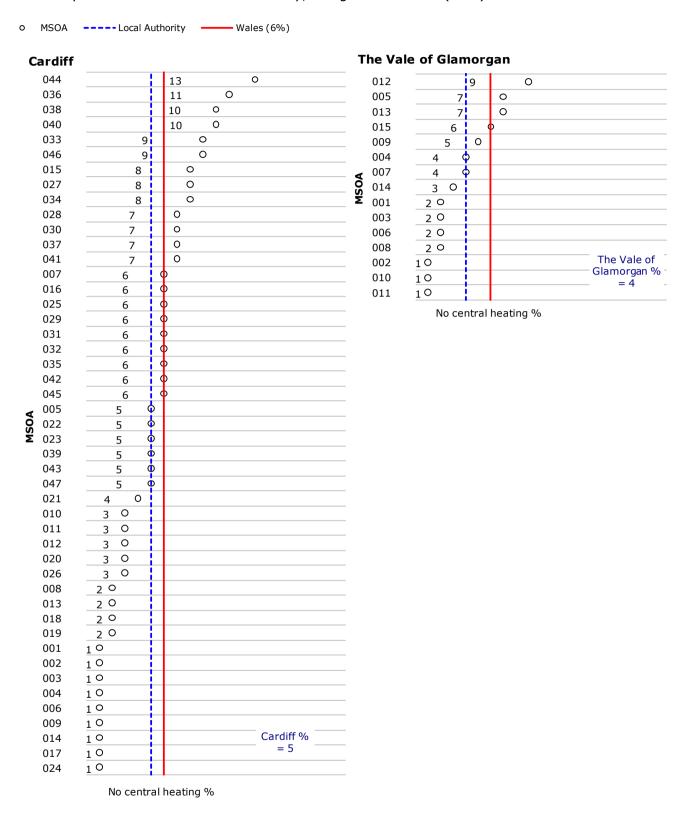
The percentage of people living in households with no central heating was lower than the Welsh average in both the Cardiff and Vale of Glamorgan local authority areas. Across Wales as whole the lowest percentages were seen in the local authorities in the south east.

Within this health board, there was substantial variation at the MSOA level, ranging from just 1% in MSOAs in both Cardiff and the Vale of Glamorgan to 13% in the Grangetown area of Cardiff (MSOA 044). The map shows the higher percentages to be clustering in the south of Cardiff and to the west of Barry.

# 

# Percentage of all people living in houses which had no central heating in any room or rooms in Cardiff and Vale University Health Board area, 2001

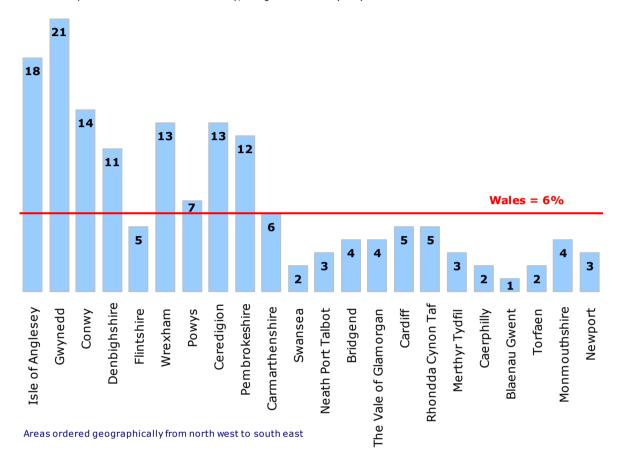
Produced by Public Health Wales Observatory, using Census 2001 (ONS)



### **Local authorities**

# Percentage of all people living in households with no central heating by local authority, 2001

Produced by Public Health Wales Observatory, using Census 2001 (ONS)



### 4 Employment

### 4.1 Employment related benefits

### **Definition**

The percentage of the working age population claiming one or more (un)employment related benefits.

### **About**

The lack, or loss, of employment will limit, or reduce, income. Unemployment can result in poverty, with all of its attendant negative health effects. Unemployment may also adversely affect psychological wellbeing which in turn may reduce societal participation<sup>8</sup>. It is likely that poor health may contribute to the loss of employment and may also limit the chances of gaining employment<sup>2</sup>. Living in communities where unemployment levels are high, and therefore the expectation of finding work is low, can cause anxiety and depression as well as leading some to turn to drugs, alcohol and crime<sup>11</sup>. Children growing up in such communities are similarly affected.

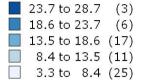
This indicator is the de-duplicated total number of working age people claiming one or more employment benefits, including Job Seeker's Allowance, Employment and Support Allowance and Incapacity Benefit. People claiming more than one such benefit are only counted once. More detailed information on this indicator can be found in the Indicator Guide.

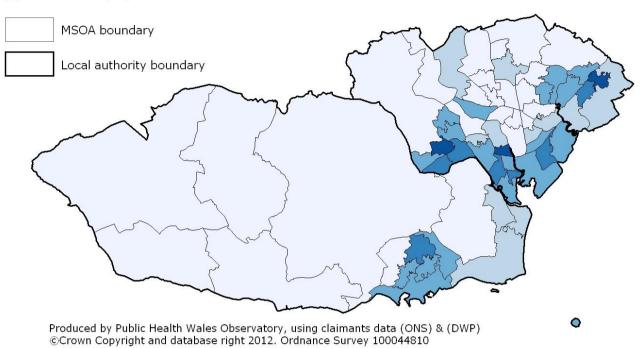
### **Pattern**

The local authority averages in this health board area were both below the Welsh average, with 11.9% in the Vale of Glamorgan and 12.2% in Cardiff.

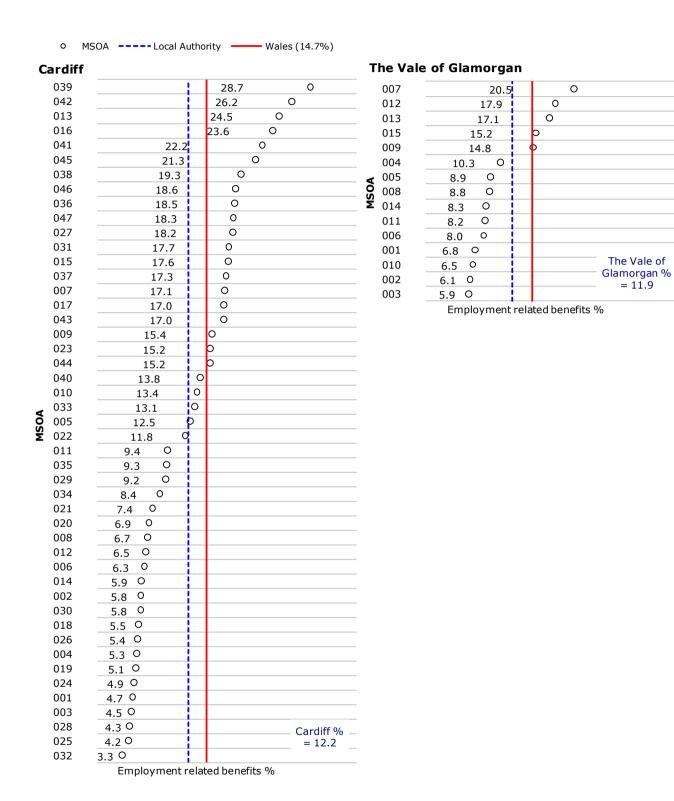
There was considerable variation at the MSOA level from just 3.3% (Cardiff MSOA 032) to 28.7% (Cardiff MSOA 039). The highest percentages occurred in the Ely, Caerau, Riverside, Trowbridge, St Mellons and Rumney areas of Cardiff. Employment related benefits, unsurprisingly, show a similar pattern to that of poverty.

## $\begin{array}{l} \textbf{Percentage of working-age population claiming employment-related benefits, November 2009 - August 2010} \\ \textbf{MSOA} \end{array}$





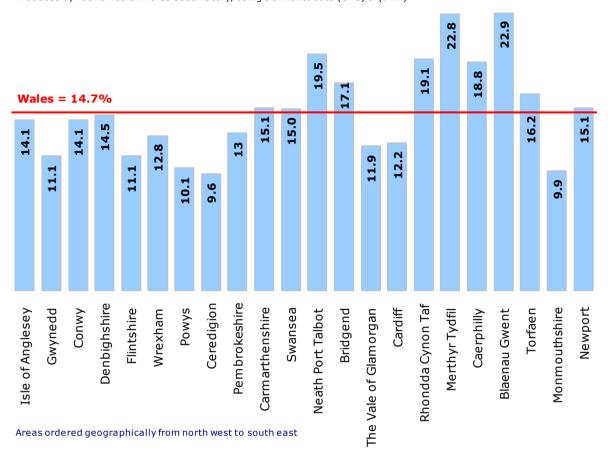
Percentage of the working-age population claiming one or more employment related benefits in Cardiff and Vale University Health Board area, November 2009 – August 2010 Produced by Public Health Wales Observatory, using claimants data (ONS) & (DWP)



### **Local authorities**

# Percentage of working-age population claiming employment-related benefits, November 2009 - August 2010

Produced by Public Health Wales Observatory, using claimants data (ONS) & (DWP)



### 5 Education

### 5.1 Educational attainment aged 16

### **Definition**

Key stage 4 educational attainment at the end of compulsory education.

### **About**

Educational attainment is a critical indicator of future education and employment opportunities. These opportunities in turn are critical indicators of income which, as discussed earlier, has a major effect on health<sup>8</sup>.

Unlike all of the other indicators, here a higher value is better. The widely used school performance tables are, by design, based on the school's pupils irrespective of where they live. Hence school based performance indicators are not amenable to a small area of residence analysis. The indicator presented here is based on the area of residence of pupils irrespective of their school, though that of course means that it is possible for more than one school to draw pupils from any single MSOA. The wider average points scores presented here represent the absolute achievement of resident school pupils with regards to all approved qualifications taken up to the age of 16 including GCSEs, NVQs, City & Guilds and other vocational qualifications. To understand more about the complex composition of this score it is best to view the more detailed information on this indicator that can be found in the Indicator Guide. Notwithstanding that, scores at the extreme ends of the scale represent substantial differences in educational achievement.

### **Pattern**

The local authority averages in this health board area were very different. Cardiff had a mean score of 379 i.e. below the Welsh average of 394, whereas, the Vale of Glamorgan had the highest mean score of the 22 local authority areas in Wales (463).

There was considerable variation at the MSOA level from just 281 (Cardiff MSOA 039) to 611 (Vale of Glamorgan MSOA 002). The highest (best) score for the health board area occurred in the Cowbridge area of the Vale of Glamorgan. Some of the other areas within the health board with high scores included Wenvoe, Rhoose, St Bride's Major, Ogmore and Penarth areas of the Vale of Glamorgan. The lowest scores occurred in MSOAs near Ely, Rumney, Trowbridge, Llanrumney, St Mellons and Cathays areas of Cardiff.

Looking at the map, MSOAs with mean scores lower than the Welsh average were concentrated in the south and east of Cardiff.

# Key stage 4 educational attainment, 2008-2010 MSOA, mean score 545 to 611 (2) 479 to 545 (8) 413 to 479 (20) 347 to 413 (15) 281 to 347 (17) MSOA boundary Local authority boundary Produced by Public Health Wales Observatory, using PLASC (WG) 6.Crown Copyright and database right 2012. Ordnance Survey 100044810

0

The Vale of Glamorgan = 463

# Key stage 4 educational attainment mean scores in Cardiff and Vale University Health Board area, 2008-10

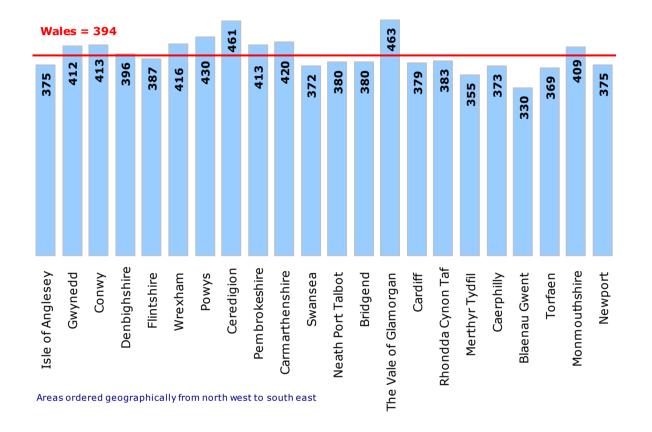
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020	470		0		_	010	509	_	
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### **Local authorities**

## Key stage 4 educational attainment mean scores by local authority, 2008-10

Produced by Public Health Wales Observatory, using PLASC (WG)



### 5.2 Not in education employment or training

### **Definition**

The percentage of year 11 school leavers who left school in the summer and who, by the end of October, were not known to be in full or part time education, employment or training (NEET).

### **About**

The non-participation in education, employment or training after compulsory education is associated with subsequent unemployment, low income, mental illness and criminal activity<sup>9</sup>. More detailed information on this indicator can be found in the Indicator Guide.

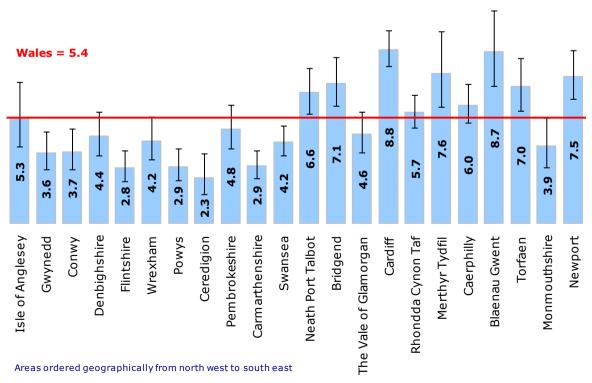
### **Pattern**

At local authority level within the health board, the Vale of Glamorgan had the lowest percentage of year 11 school leavers who were not known to be in education, employment or training by October and the level was similar to Wales. The percentage for Cardiff was the highest of all the local authorities in Wales.

Percentage of year 11 school leavers known not to be in education, employment or training (NEET), 2010

95% confidence interval

Produced by Public Health Wales Observatory, using data from Careers Wales



### **6** Community Safety

### 6.1 Criminal damage incidents

### **Definition**

The rate of incidents of criminal damage per 1,000 day time population.

### **About**

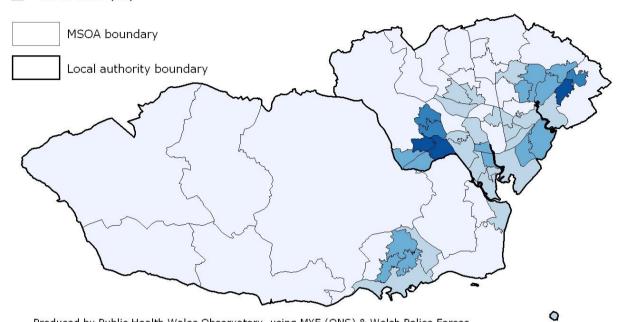
Criminal damage relates to unlawful damage or destruction of property. As well as the immediate effects of criminal damage to property, this, and all crime, can adversely affect mental wellbeing. The development of a fear of crime can lead to decreased social interactions. There are strong associations between all levels of criminal activity and also with drug and alcohol misuse<sup>10</sup>. More detailed information on this indicator can be found in the <u>Indicator Guide</u>.

### **Pattern**

The rate of recorded incidents of criminal damage in the Vale of Glamorgan is very similar to the all Wales level while the rate in Cardiff is slightly higher. Both the highest and lowest rates within the health board at MSOA level are found within Cardiff; the highest level being 46.2 in Cardiff 039 and Cardiff 041 and the lowest level being 4.2 in Cardiff 018. The map shows that there are concentrations of higher levels of criminal damage in the areas of Ely, Caerau, Rumney, St Mellons and Trowbridge. The lowest levels are found in most of the Vale of Glamorgan, particularly the north and western parts as well as much of the northern area of Cardiff.

### The rate of incidents of criminal damage per 1,000 day time population, April 2008 - March 2010 $_{ m MSOA}$





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23.0 0 22.9 0

The Vale of Glamorgan = 12.4

22.0 0

### The rate of incidents of criminal damage per 1,000 day time population in Cardiff and Vale University Health Board area, April 2008 - March 2010

Produced by Public Health Wales Observatory, using data from Welsh Police Forces & MYE (ONS)

- Local Authority ——— Wales (
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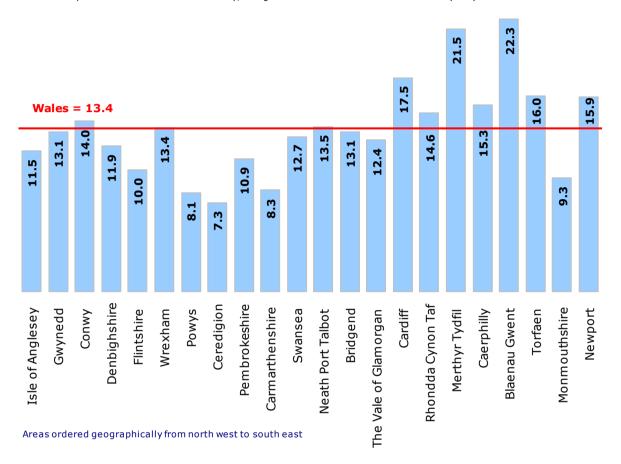
Ca	ardiff						The Val	e of Glamorgan	
	039			46.2		0	007		2.7
	041			46.2		0	012		23
	016			39.1	0		012		22
	013			37.2	0		015	18.1	22.0
	031				)		005	14.9	0
	027			30.1			009		0
	045			29.2				13.9 10.7 O	
	015			29.0 0			<b>6</b> 006	9.8 0	
	037			28.8			008 006 004	9.4 0	
	043			28.5			014	7.1 0	
	007			27.8			014	7.0 0	
	009			26.3 0			010		
	038	26.0		0			003	4.7 0	
	017	25.3		0			003	4.3 0	Th Glam
	044	23.6		0			001	4.3 0	Clairi
	042	23.4		0			002		i
	036	20.5		0				Criminal damage i	ncidence rate
	022	19.5		0					
	046	19.4		0					
	047	19.0		0					
	020	18.9		0					
	023	17.9		D					
_	040	17.6		)					
MSOA	021	16.6	0						
Σ	028	16.1	0						
	033	15.9	0						
	029	15.8	0						
	034	15.7	0						
	035	15.5	0						
	030	15.4	0						
	800	13.2	)						
	011	11.5 0							
	012	10.6 0							
	019	10.1 0							
	025	10.1 0							
	032	10.1 0							
	005	9.7 0							
	010	9.1 0							
	026	9.1 0							
	003	8.7 0							
	024	8.6 0							
	002	7.0 0							
	001	6.6 0							
	014	6.6 O							
	004	6.5 O							
	006	6.0 0			Cardiff	= 17.5			
	018	4.2 0			•				

Criminal damage incidence rate

### **Local authorities**

# The rate of incidents of criminal damage per 1,000 day time population by local authority, April 2008 - March 2010

Produced by Public Health Wales Observatory, using data from Welsh Police Forces & ONS (MYE)



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### 8 Appendix A: Glossary

### Middle Super Output Areas

Middle super output areas (MSOAs) were released by the Office for National Statistics (ONS) in 2004. In contrast with administrative boundaries such as electoral divisions (wards), super output areas were created for the purpose of showing statistical data.

MSOAs have a mean population of 7,500 and a minimum of 5,000. There are 413 MSOAs in Wales and 62 MSOAs in the Cardiff and Vale University Health Board area. These are shown on the maps in Appendix B.

The ONS have stated that super output area geographies will be fixed for at least 10 years. The advantage of using these statistical geographies is stability and homogeneity. However, the main drawback is that they do not conform to known administrative boundaries such as electoral divisions (wards); this makes them less amenable to the public and local government.

# Confidence intervals

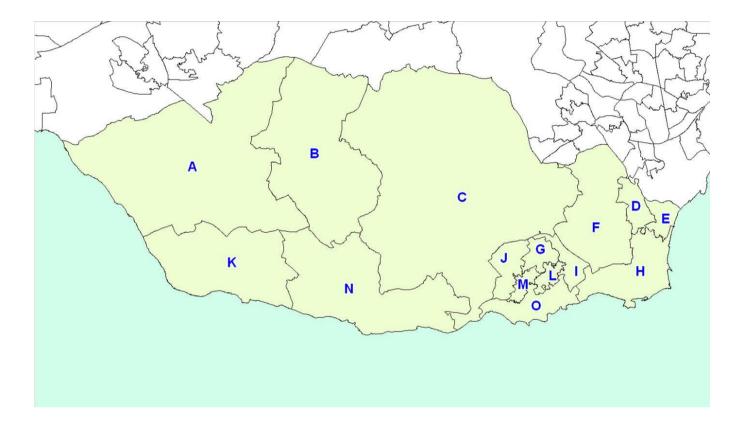
Confidence intervals are indications of the random variation that would be expected around a rate. Confidence intervals must be considered when assessing or interpreting a rate. The 95% confidence interval represents a range which has a 95% probability of including the underlying population rate.

The range of the confidence interval is dependent on the size of the population from which the events came. Rates based on small populations are likely to have wider confidence intervals and rates based on large populations are likely to have narrower confidence intervals.

# 9 Appendix B: Maps showing Middle Super Output Areas in the Cardiff and Vale University Health Board area

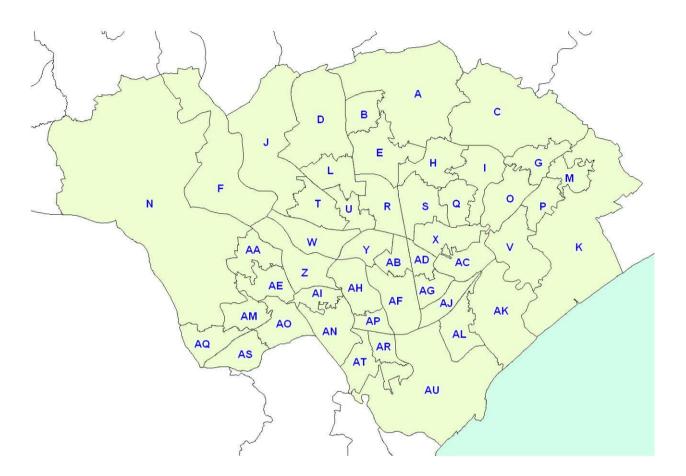
The Public Health Wales Observatory has also produced a web-based interactive map showing MSOA boundaries, with the added facility of background Ordnance Survey mapping. Follow this link: <a href="http://www2.nphs.wales.nhs.uk/InstantAtlas/GeographyTool/atlas.html">http://www2.nphs.wales.nhs.uk/InstantAtlas/GeographyTool/atlas.html</a>

### Vale of Glamorgan



The Vale of Glamorgan 001 Α В The Vale of Glamorgan 002 С The Vale of Glamorgan 003 D The Vale of Glamorgan 004 Е The Vale of Glamorgan 005 F The Vale of Glamorgan 006 G The Vale of Glamorgan 007 Н The Vale of Glamorgan 008 The Vale of Glamorgan 009 I J The Vale of Glamorgan 010 The Vale of Glamorgan 011 Κ The Vale of Glamorgan 012 L The Vale of Glamorgan 013 M The Vale of Glamorgan 014 Ν The Vale of Glamorgan 015 0

### Cardiff



Α	Cardiff 001	Υ	Cardiff 025
В	Cardiff 002	Z	Cardiff 026
С	Cardiff 003	AA	Cardiff 027
D	Cardiff 004	AΒ	Cardiff 028
E	Cardiff 005	AC	Cardiff 029
F	Cardiff 006	AD	Cardiff 030
G	Cardiff 007	ΑE	Cardiff 031
Н	Cardiff 008	ΑF	Cardiff 032
I	Cardiff 009	ΑG	Cardiff 033
J	Cardiff 010	АН	Cardiff 034
K	Cardiff 011	ΑI	Cardiff 035
L	Cardiff 012	ΑJ	Cardiff 036
Μ	Cardiff 013	ΑK	Cardiff 037
N	Cardiff 014	AL	Cardiff 038
0	Cardiff 015	AM	Cardiff 039
Р	Cardiff 016	ΑN	Cardiff 040
Q	Cardiff 017	ΑO	Cardiff 041
R	Cardiff 018	ΑP	Cardiff 042
S	Cardiff 019	ΑQ	Cardiff 043
Т	Cardiff 020	AR	Cardiff 044
U	Cardiff 021	AS	Cardiff 045
V	Cardiff 022	ΑT	Cardiff 046
W	Cardiff 023	ΑU	Cardiff 047
Χ	Cardiff 024		