GIG CYMRU NHS WALES
Arsyllfa Iechyd Cyhoeddus Cymru
Public Health Wales Observatory

Director of Public Health Annual Report: Chart Book

Betsi Cadwaladr University Health Board

Published July 2011

Contents

1 Introduction

This Betsi Cadwaladr University Health Board (UHB) chart book has been produced by the Public Health Wales Observatory as an appendix to the Director of Public Health Annual Report.

It updates and adds to the chart book produced by the Director of Public Health for Abertawe Bro Morgannwg University Health Board (UHB) for his Interim Annual Report. A decision was made by the Wales Directors of Public Health to use these indicators to inform their annual reports.

The Abertawe Bro Morgannwg UHB chart book indicators originated from a number of sources:

- Public Health Wales Observatory
- Vaccine Preventable Disease Programme (Public Health Wales)
- Public Health Wales Screening Services
- Welsh Cancer Intelligence and Surveillance Unit (Public Health Wales)

This updated chart book draws together information from the above resources and adds new information from the following sources:

Sourced from the Public Health Wales Observatory:

- Director of Public Health Annual Report: supporting indicators, 2011
- Demography Profile, 2009
- Lifestyle Profile, 2010
- Inequalities in mortality in Betsi Cadwaladr University Health Board: interim release to support Directors of Public Health annual reports

From other sources:

- Welsh Health Survey, Welsh Assembly Government (repackaged by the Public Health Wales Observatory)
- Public Health Wales, Vaccine Preventable Disease Programme
- Screening Division (Public Health Wales)
- Welsh Cancer Surveillance and Intelligence Unit (Public Health Wales)

The indicators have been presented under the following chapter headings: demography; determinants of health; use of services and health status. A summary of key points is included at the beginning of each chapter.

Maps included in this document show data by fifths of equal range within the health board area.

Included in Appendix A are web links for the original source reports and further information to support the used in this chart book.

A glossary of some of the terms used in this chart book is included in Appendix B.

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

2 Demography

2.1 Demography: key points

Population structure

Betsi Cadwaladr UHB, covers six local authority areas: Isle of Anglesey (Anglesey); Gwynedd; Conwy; Denbighshire; Flintshire and Wrexham. The population of the health board is estimated to have been 679 thousand in 2009. The age structure of the population is different to Wales with higher proportions of persons aged 55 and over and lower proportions aged between 15 and 34 years.

At local authority level, Conwy, Anglesey, Gwynedd and Denbighshire exhibit lower proportions of the population aged under 18 than Wales. At middle super output area level (MSOA), higher proportions of persons aged under 18 are found in parts of Rhyl and in the Wynnstay, Queensway and Cartrefle areas of Wrexham. The areas with the lowest proportions are in the Abergele, Llandudno and Llandrillo yn Rhos areas of Conwy; eastern parts of Anglesey; parts of Bangor, the Harlech and Tywyn areas of Gwynedd and around Llangollen in Denbighshire.

For persons aged 75 years and over Anglesey, Gwynedd, Denbighshire and Conwy have higher than average proportions in this age group with Flintshire and Wrexham having lower than average proportions. In Conwy the proportion aged 75 years and over is particularly high at just under twelve per cent. At the MSOA level, the highest proportions are found in the Llandudno, Abergele, Llandrillo yn Rhos, Penrhyn, Deganwy and Marl areas of Conwy and also the Tywyn area of Gwynedd. The pattern is very similar in those aged 85 and over.

Population projections

The latest projections indicate that, if current trends continue, the number of persons aged 65 and over resident in Betsi Cadwaladr UHB will increase by 60 per cent between 2008 and 2033. The proportion aged 75 and over is projected to increase from around seven and eight per cent in Flintshire and Wrexham respectively to around 15 and 14 per cent respectively over this period. In Conwy, the proportion is projected to rise from around 12 per cent to 18 per cent. The percentage aged 85 and over is projected to double from around 2 to 3.5 percent to around 5.5 to 7 per cent by 2033.

The increase in the number of older people is likely to be associated with a rise in chronic conditions such as circulatory and respiratory diseases and cancers. Meeting the needs of these individuals will be a key challenge for the health board. In the current economic climate, the relative (and absolute) increase in economically dependent and, in some cases, care-dependent populations will pose particular challenges to communities.

Birth rate

The General Fertility Rate (GFR) for Betsi Cadwaladr UHB is very similar to the rate for Wales. At local authority level the rate is highest in Wrexham and lowest in Gwynedd within the health board. At the MSOA level, there is considerable variation. Rates are particularly low in parts of Bangor in Gwynedd where there is a large student population. The areas with the

highest rates are in the Queensway, Wynnstay and Cartrefle areas of Wrexham; and in parts of Rhyl and Colwyn Bay.

All-cause mortality

The European age-standardised all-cause mortality rate takes into account the age structure of the population, allowing valid comparisons to be made between areas. The rate for Betsi Cadwaladr UHB is lower than Wales. Within the health board, the rate is lowest in Anglesey (597 per 100,000) and highest in Wrexham (645 per 100,000). At the MSOA level, variation is considerable with rates ranging from 427 to 1016 per 100,000 population. The lowest rates are generally found in the more rural areas of eastern Anglesey; south eastern parts of Wrexham and Flintshire local authority area. Particularly high rates are found in the Gwersyllt West area of Wrexham and the coastal strip in Rhyl. Among persons aged under 75 years the pattern is similar. The health board exhibits a decreasing trend in mortality in persons under 75 years from 2000 to 2009 which is generally in line with the all Wales pattern.

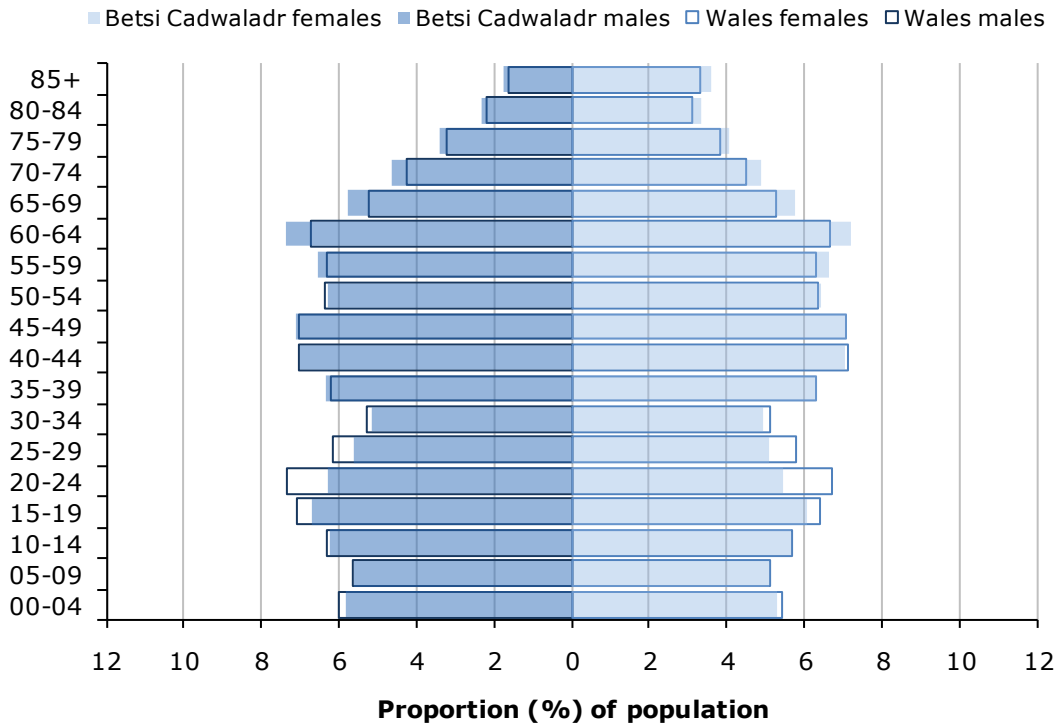
2.2 Population

2.2.1 Population by age and sex

Wales and Betsi Cadwaladr University Health Board

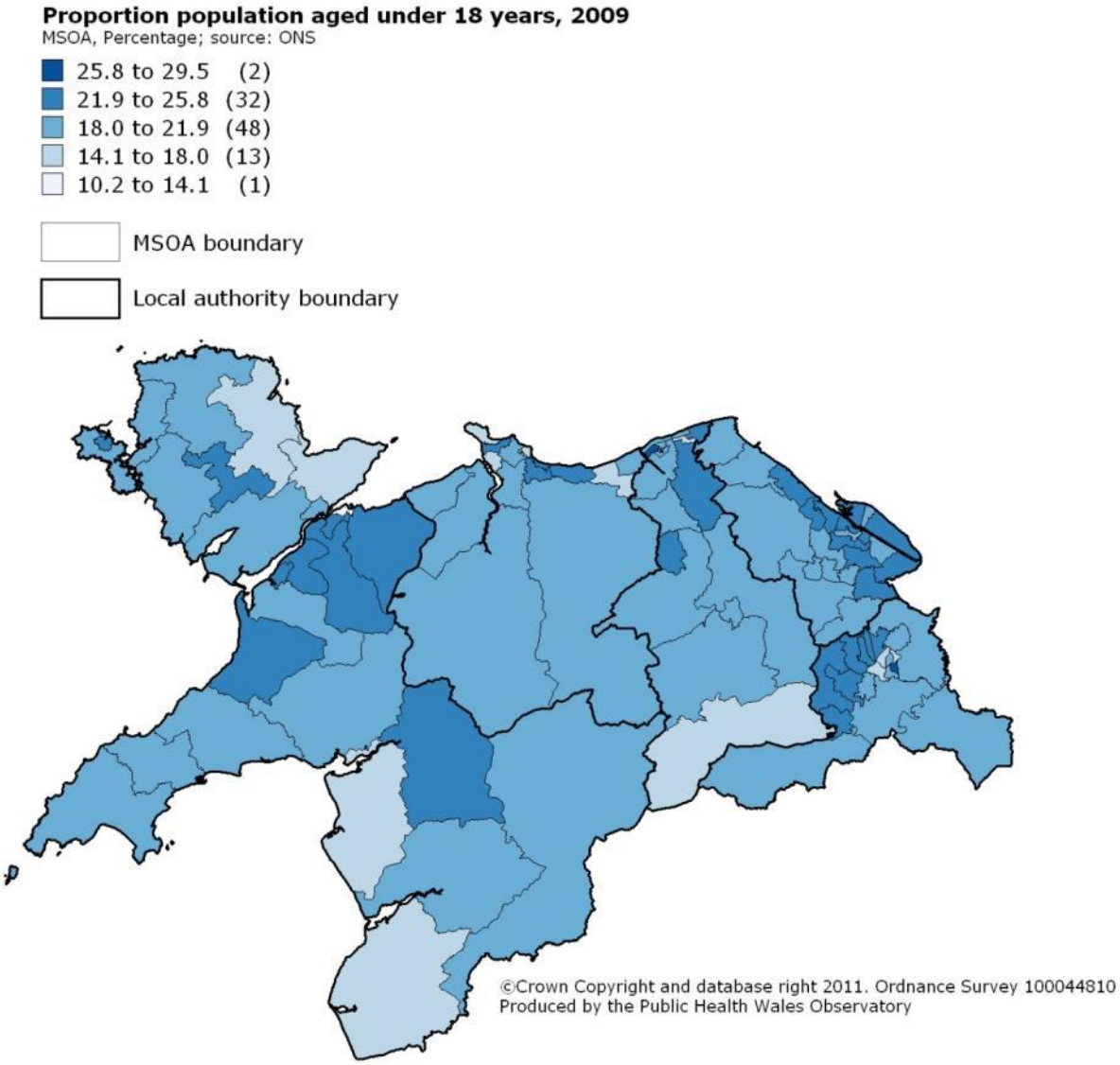
Proportion of population by age and sex
Betsi Cadwaladr University Health Board: 2009

Produced by the Public Health Wales Observatory
using data from 2009 mid year population estimates, Office for National Statistics



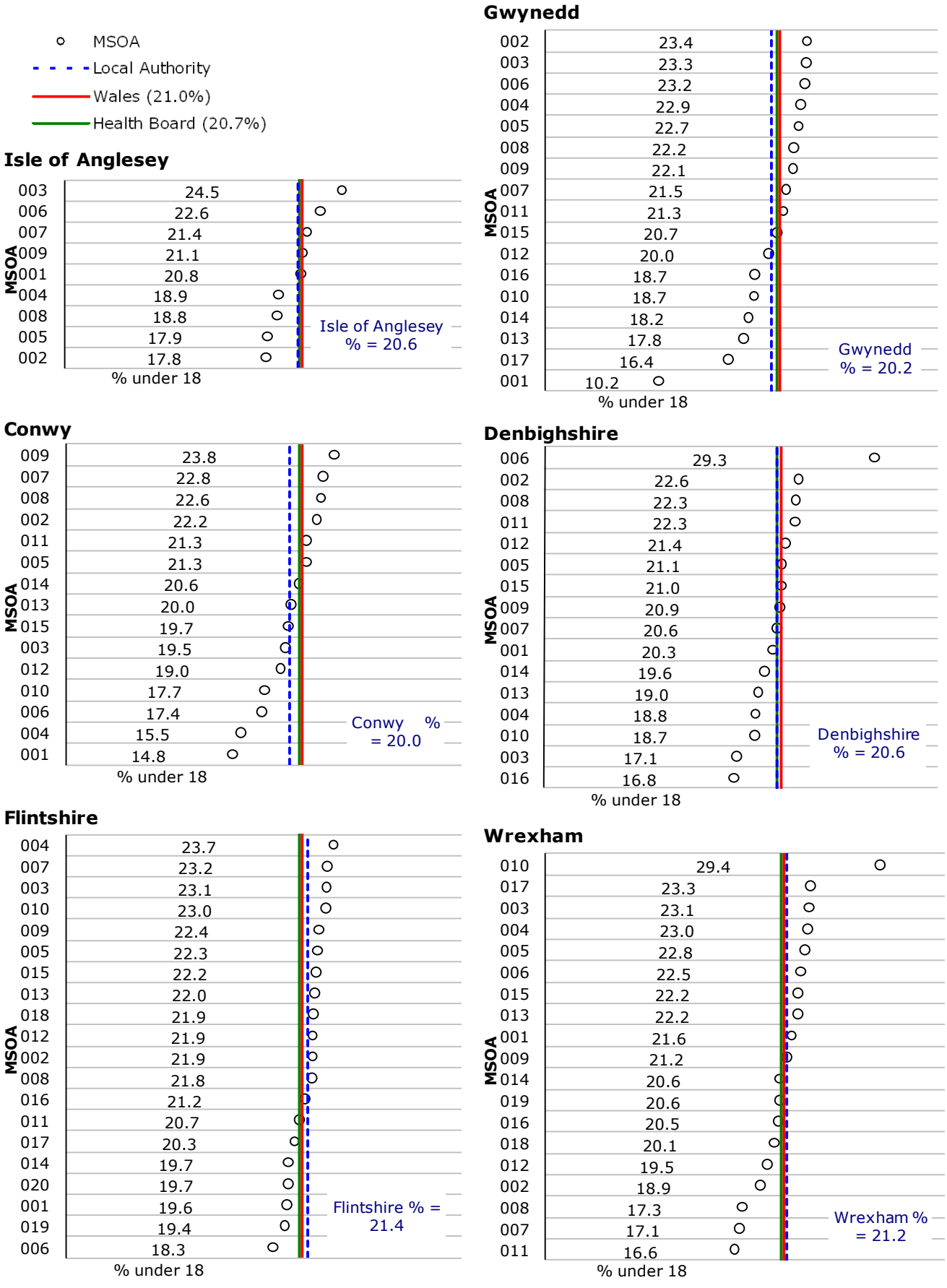
2.2.2 Population aged under 18

Middle super output areas



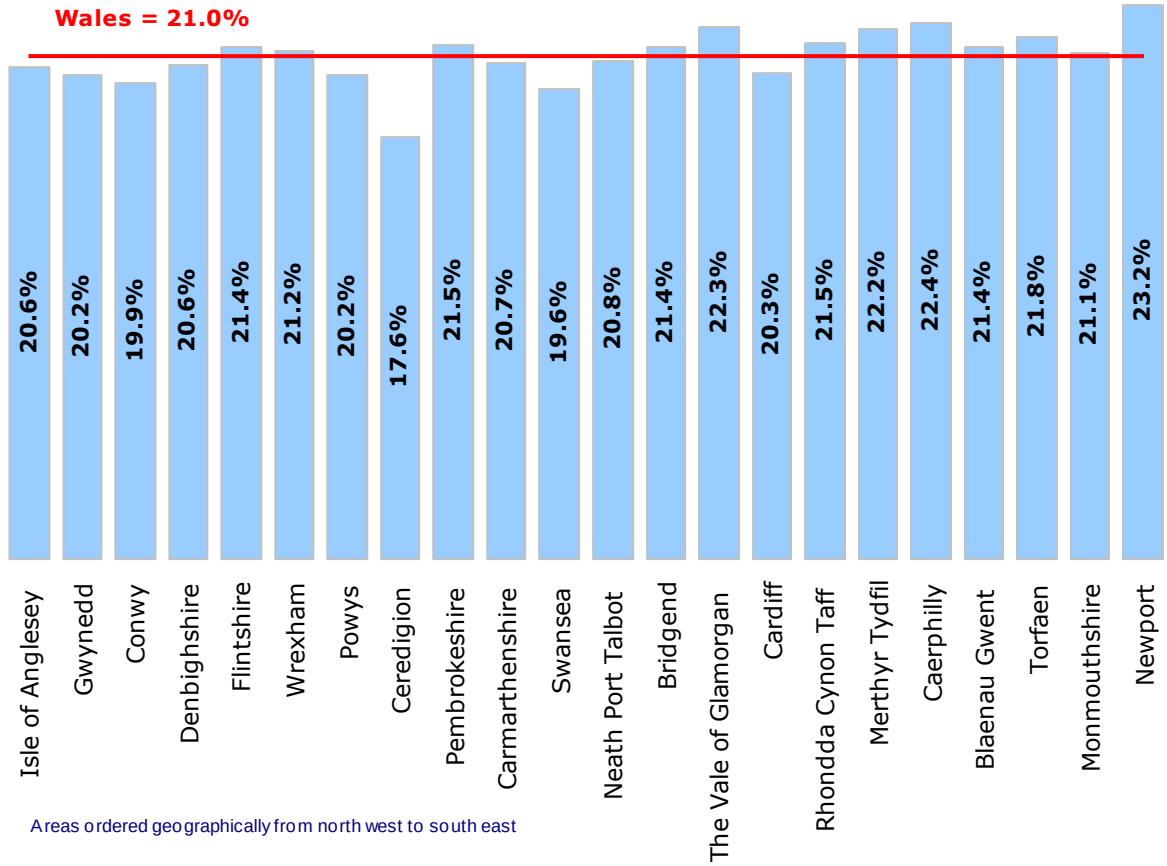
Percentage of population aged under 18 in Betsi Cadwaladr University Health Board area, 2009

Produced by Public Health Wales Observatory, using data from ONS (MYE)



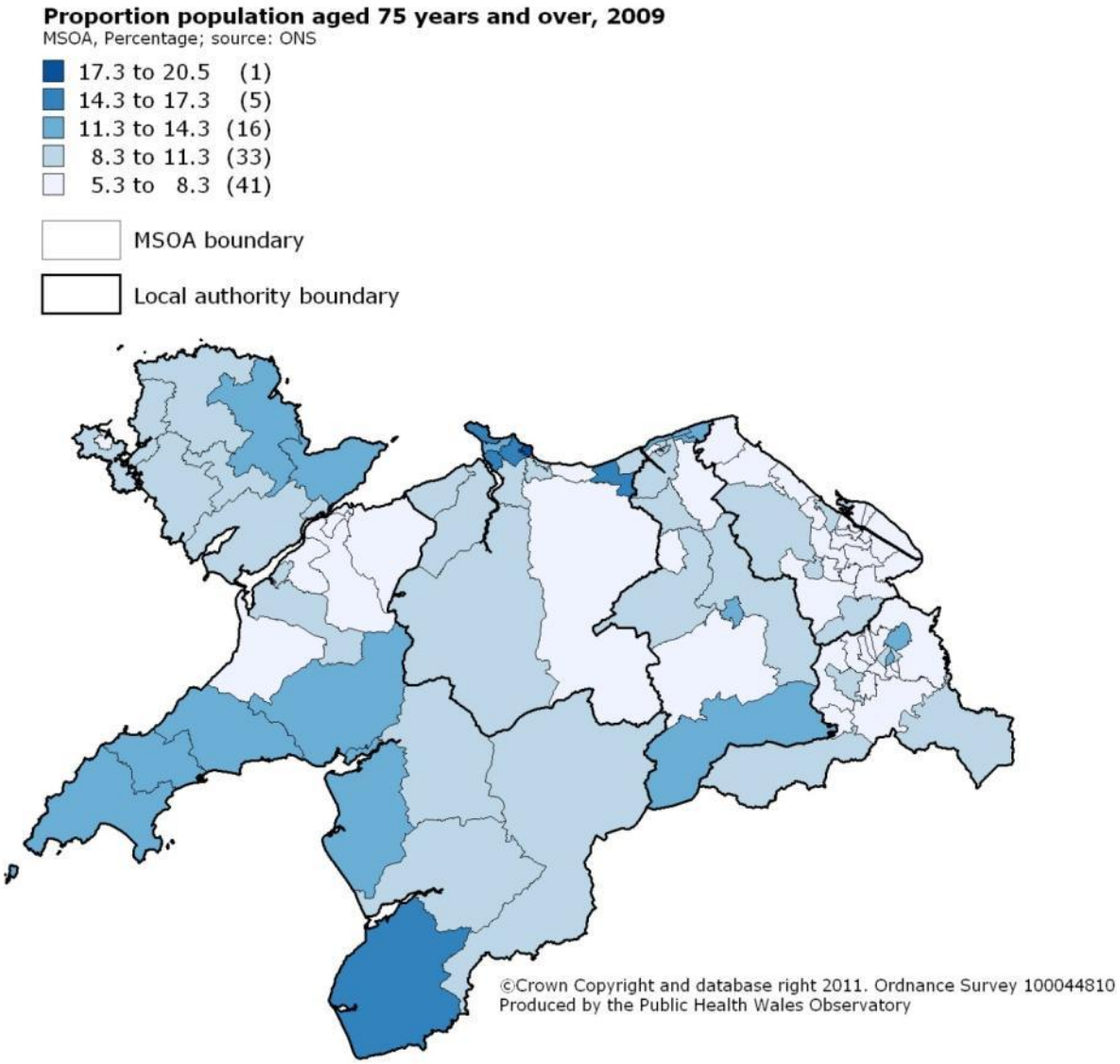
Local authorities

Percentage of population aged under 18 by local authority, 2009
Produced by Public Health Wales Observatory, using data from ONS (MYE)



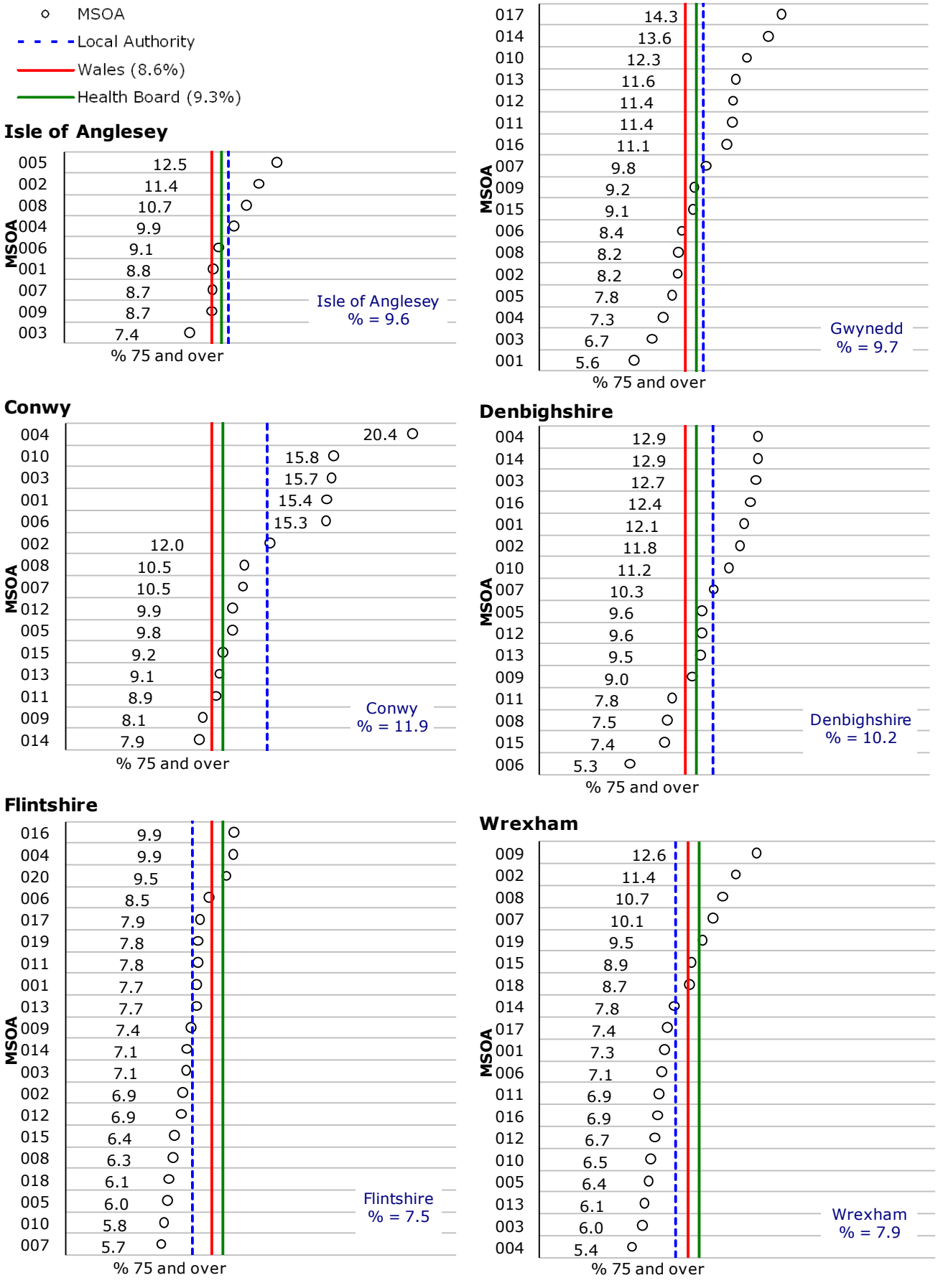
2.2.3 Population aged 75 and over

Middle super output areas



Percentage of population aged 75 and over in Betsi Cadwaladr University Health Board area, 2009

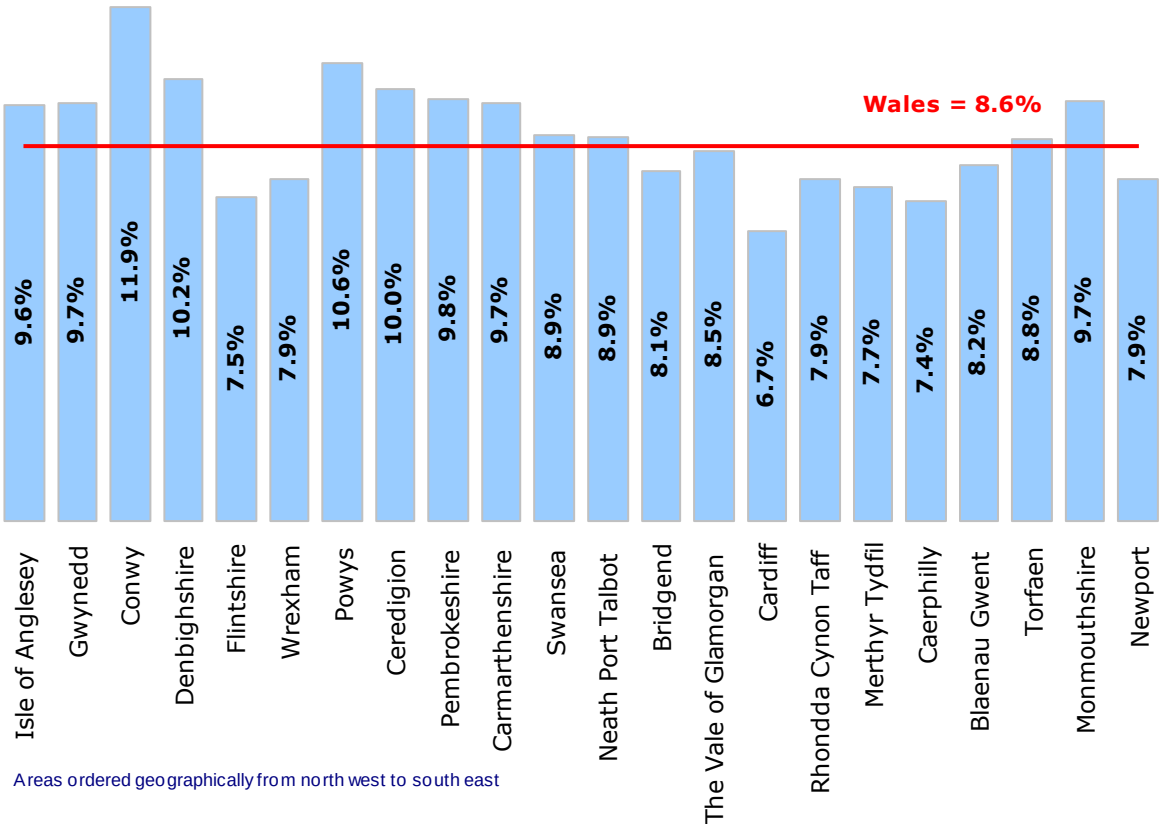
Produced by Public Health Wales Observatory, using data from ONS (MYE)



Local authorities

Percentage of population aged 75 and over by local authority, 2009

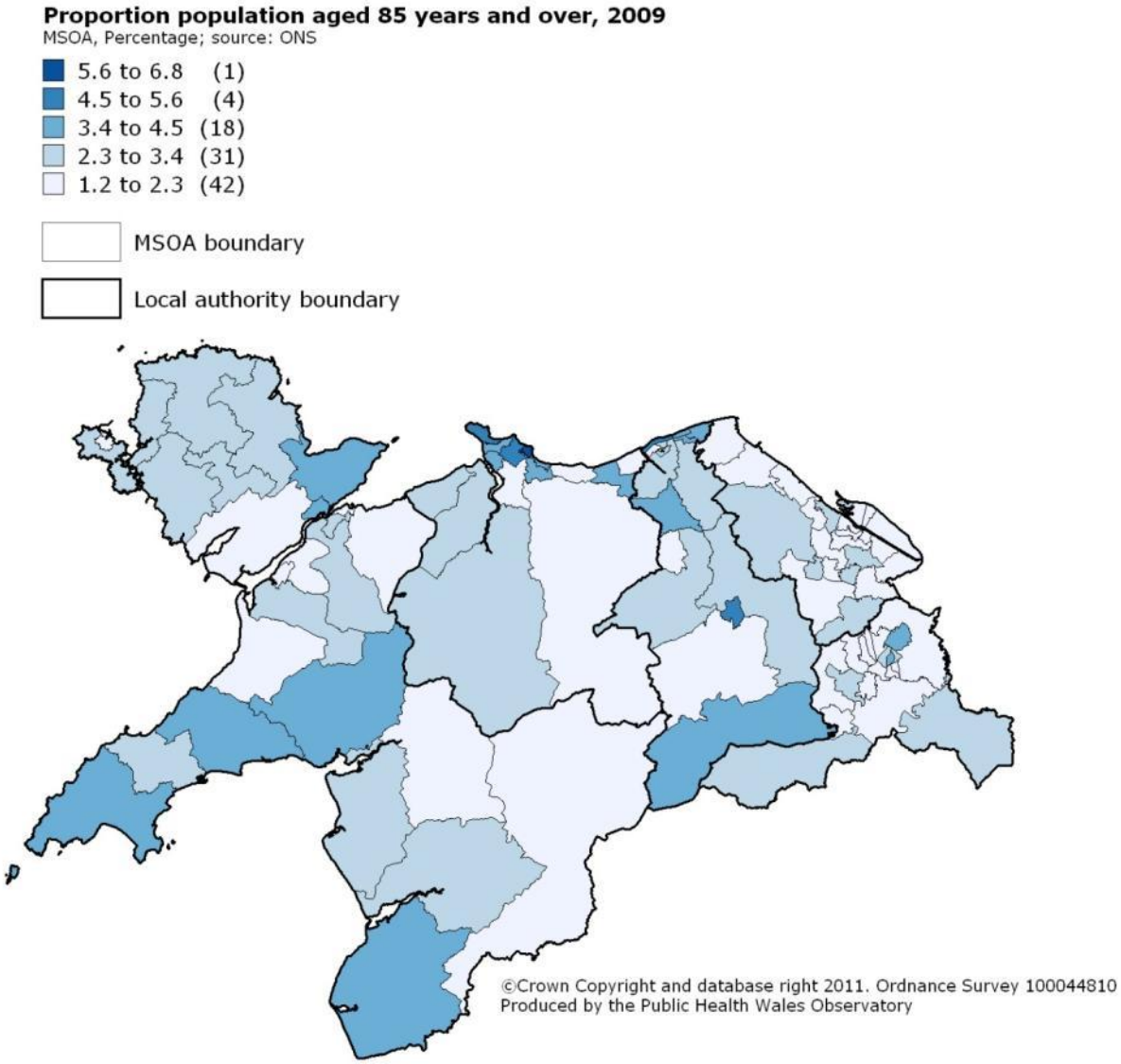
Produced by Public Health Wales Observatory, using data from ONS (MYE)



Areas ordered geographically from north west to south east

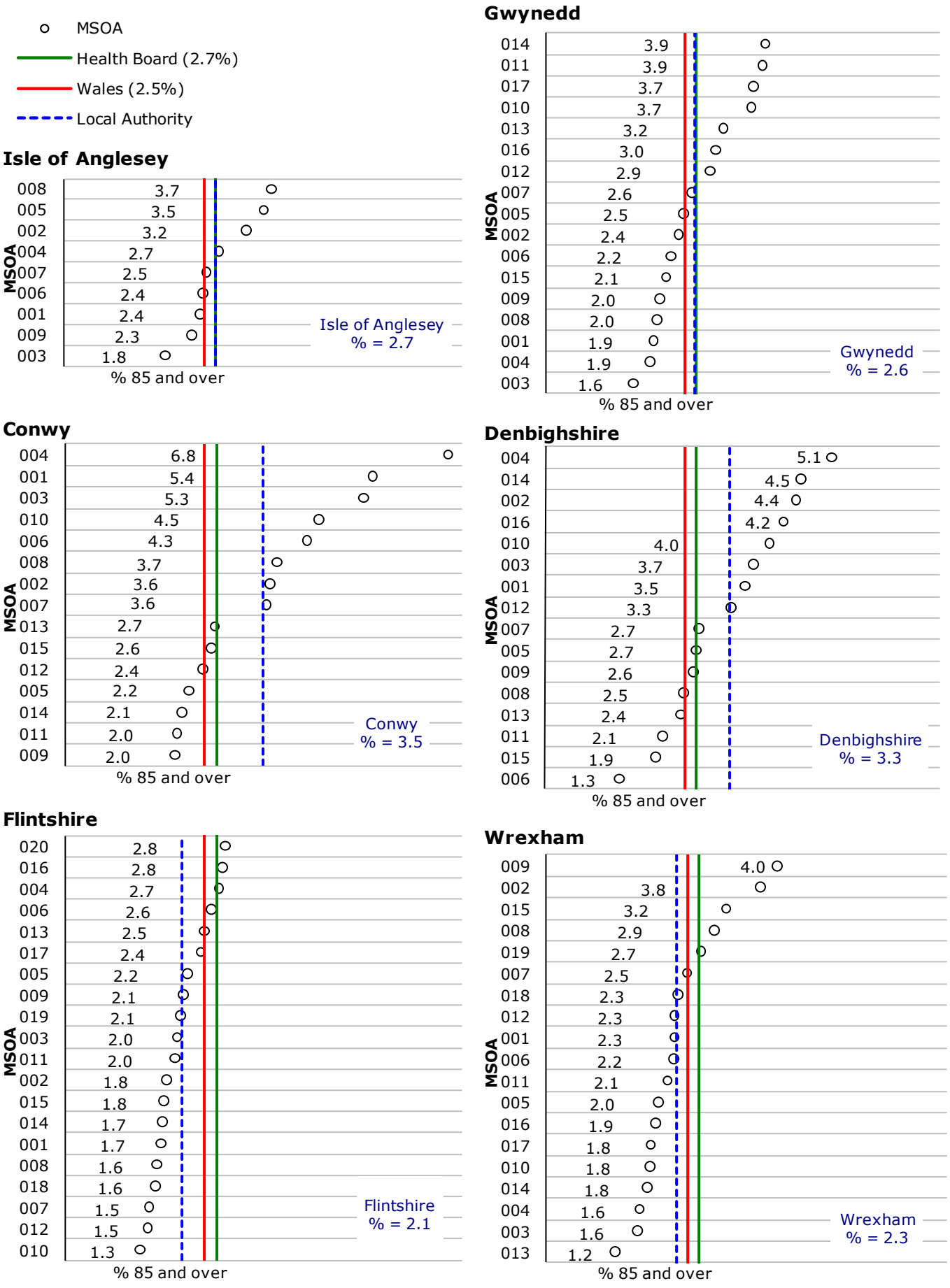
2.2.4 Population aged 85 and over

Middle super output areas



Percentage of population aged 85 and over in Betsi Cadwaladr University Health Board area, 2009

Produced by Public Health Wales Observatory, using data from ONS (MYE)



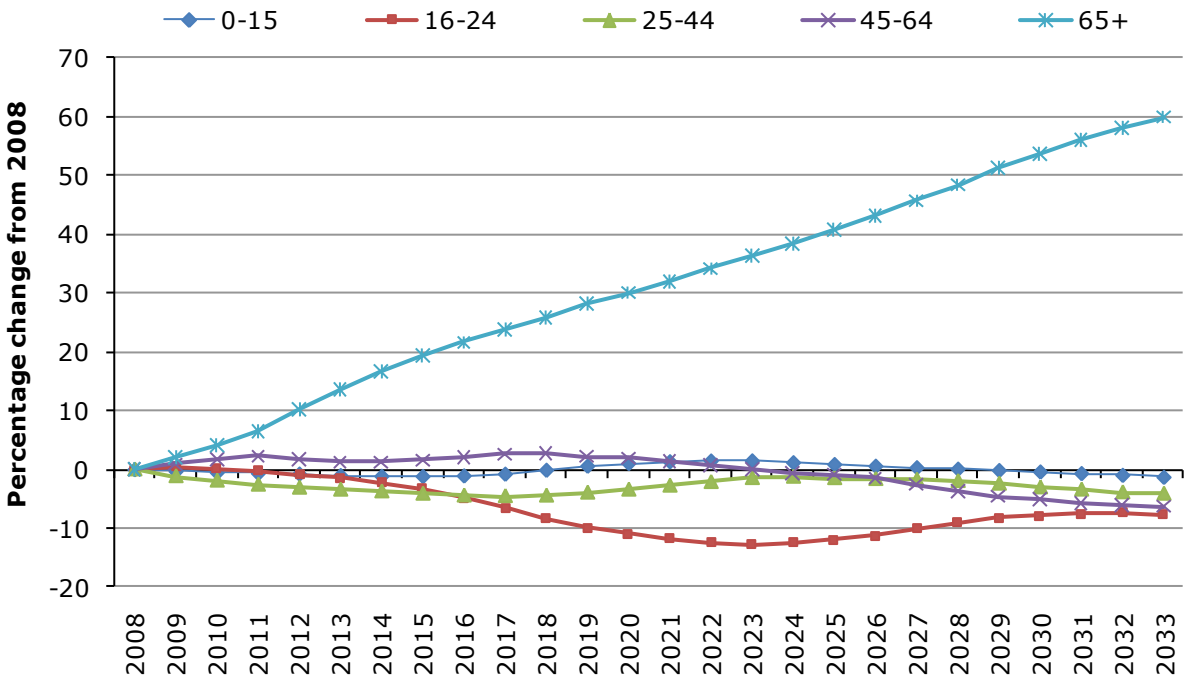
2.3 Population projections

2.3.1 Population projections by age group

Betsi Cadwaladr University Health Board

2008-based population projections for Betsi Cadwaladr University Health Board, persons: 2008 to 2033

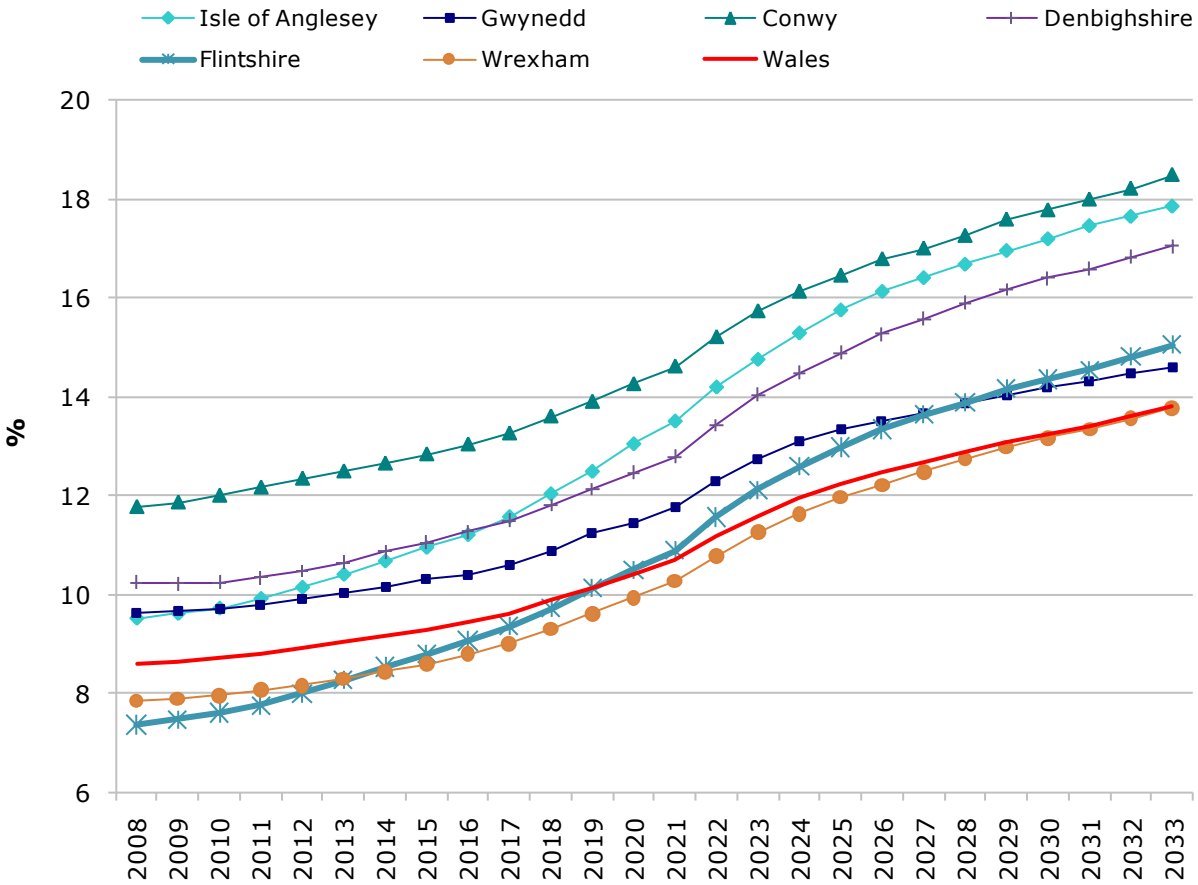
Produced by the Public Health Wales Observatory, using data from the Welsh Assembly Government



2.3.2 Population projections, persons aged 75 and over

Local authorities within Betsi Cadwaladr University Health Board*

Projected population, 2008-2033, % aged 75 and over
Produced by Public Health Wales Observatory, using data from the Welsh Assembly Government

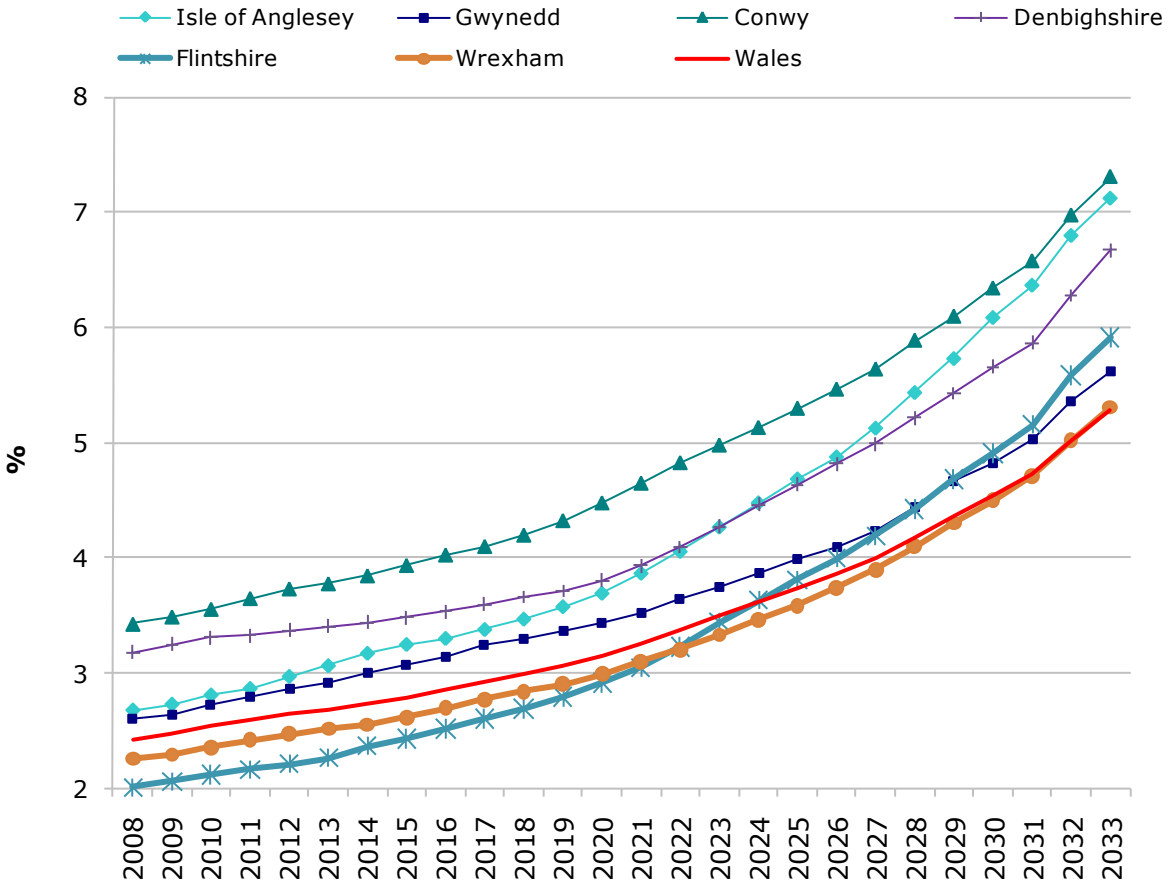


* Y-axis is truncated

2.3.3 Population projections, persons aged 85 and over

Local authorities within Betsi Cadwaladr University Health Board*

Projected population, 2008-2033, % aged 85 and over
Produced by Public Health Wales Observatory, using data from the Welsh Assembly Government

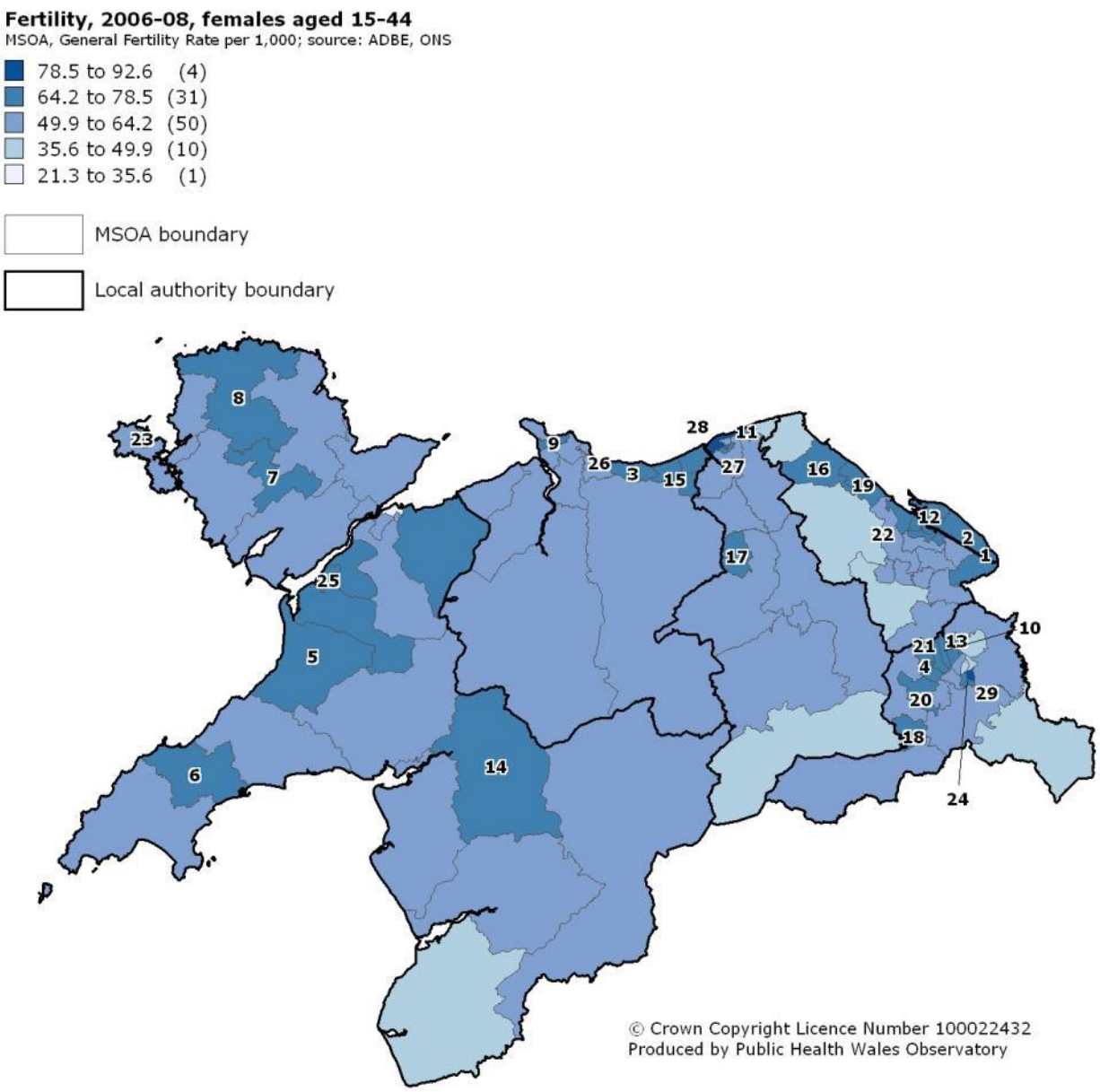


* Y-axis is truncated

2.4 Births

2.4.1 General fertility rate

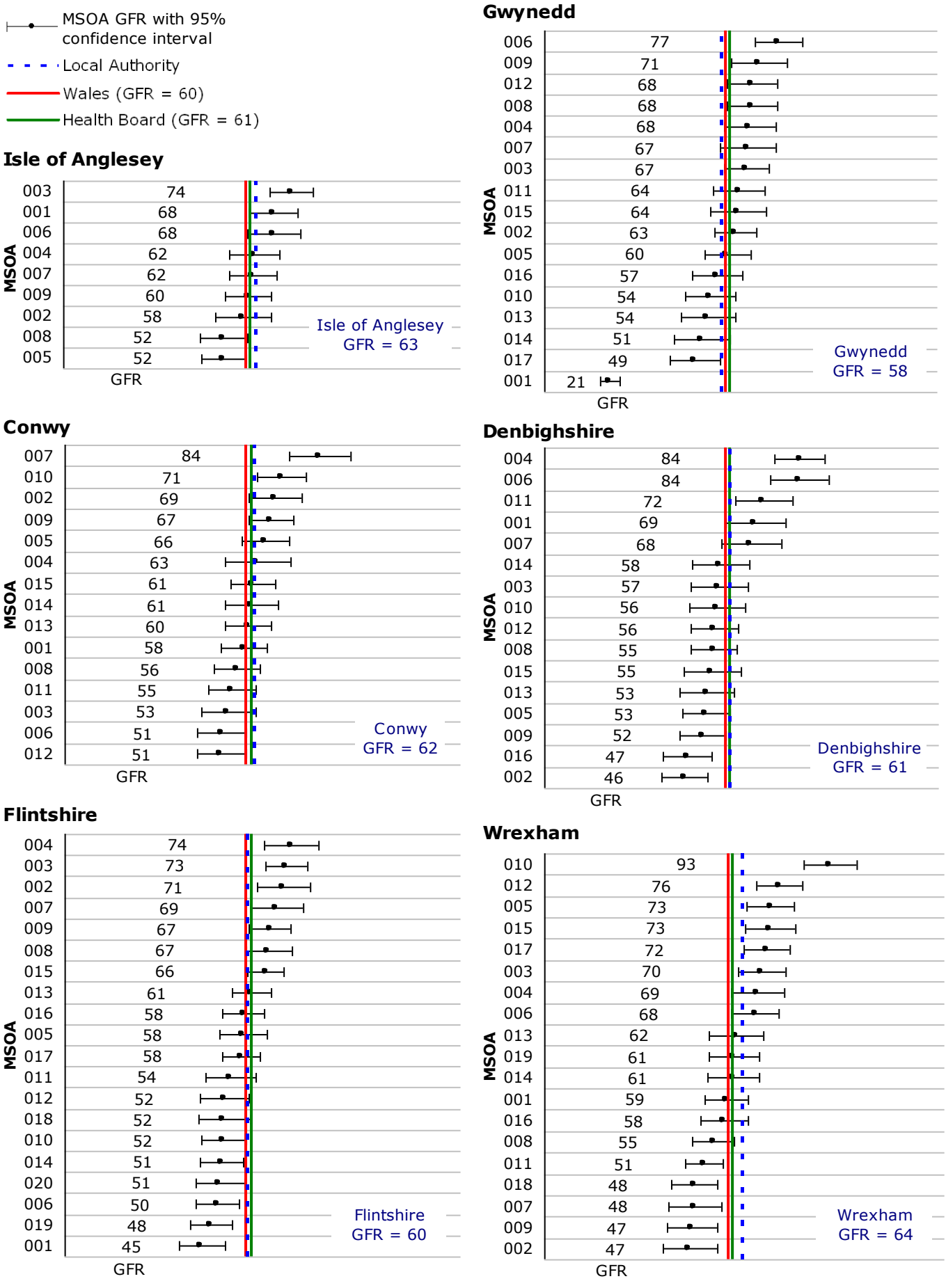
Middle super output areas



Numbers on map indicate MSOAs with a rate statistically significantly higher than the all Wales rate.

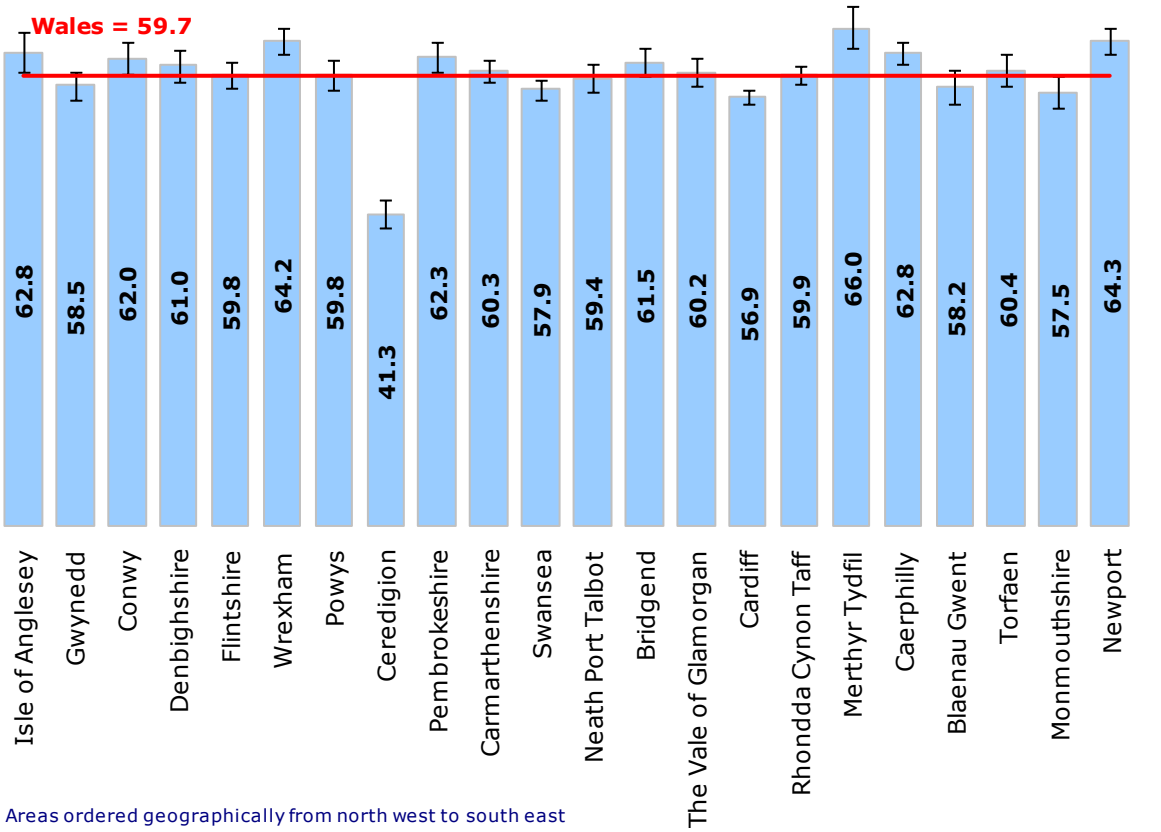
General fertility rate per 1,000 in Betsi Cadwaladr University Health Board area, females aged 15-44, 2006-08

Produced by Public Health Wales Observatory, using data from ONS (ADBE, MYE)



Local authorities

General fertility rate per 1,000, by local authority, 2006-08
Produced by Public Health Wales Observatory, using data from ONS (ADBE, MYE)

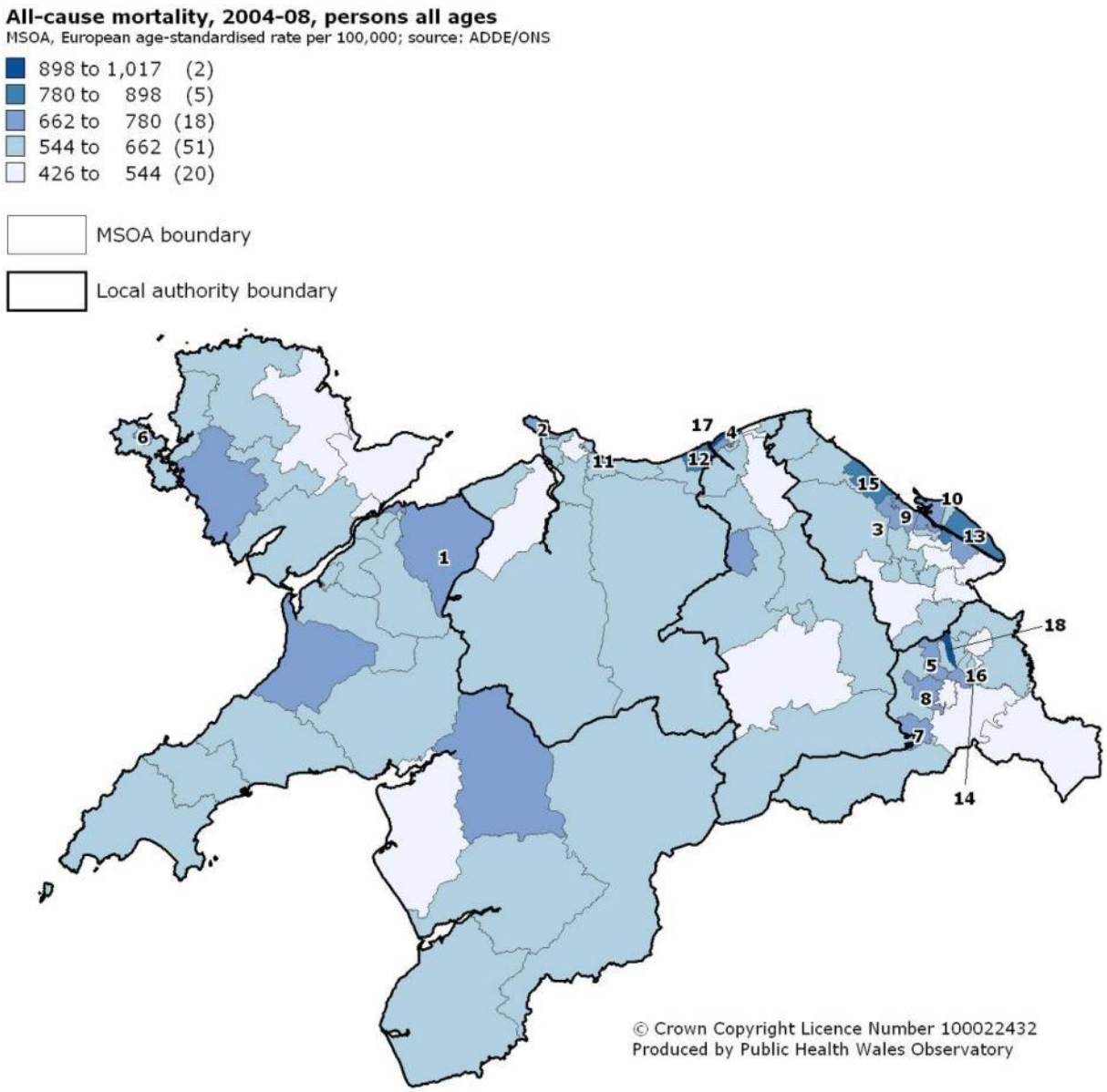


Areas ordered geographically from north west to south east

2.5 Deaths

2.5.1 All-cause mortality

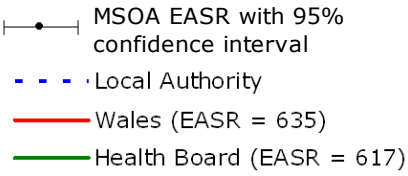
Middle super output areas



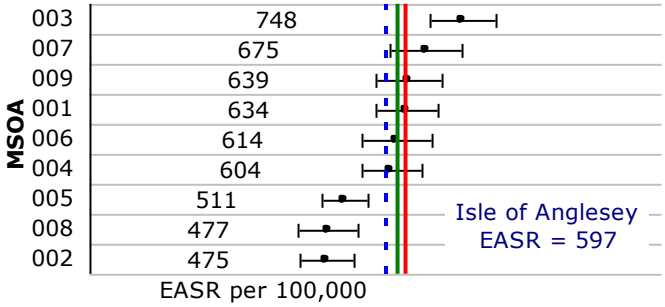
Numbers on map indicate MSOAs with a rate statistically significantly higher than the all Wales rate.

All-cause mortality in Betsi Cadwaladr University Health Board area, all persons, 2004-08, European age-standardised rates per 100,000

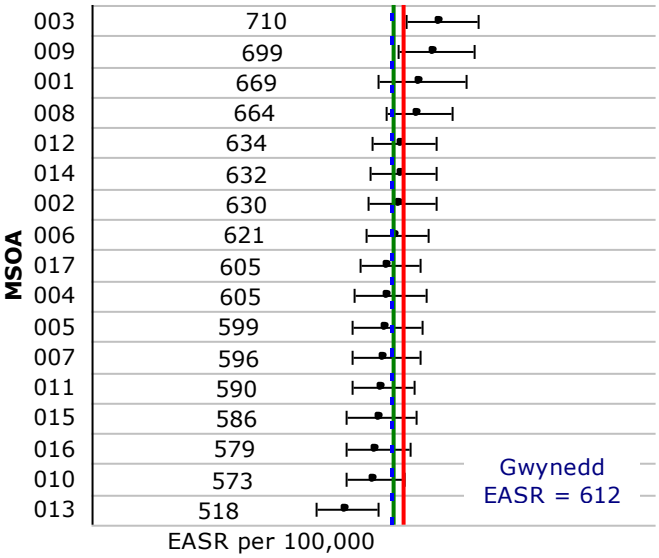
Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)



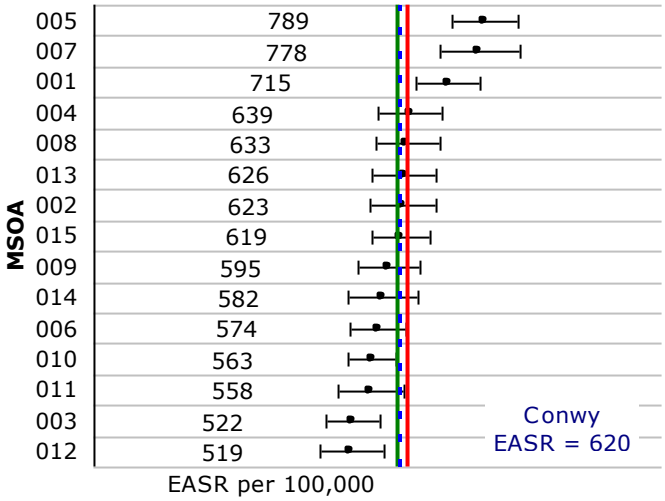
Isle of Anglesey



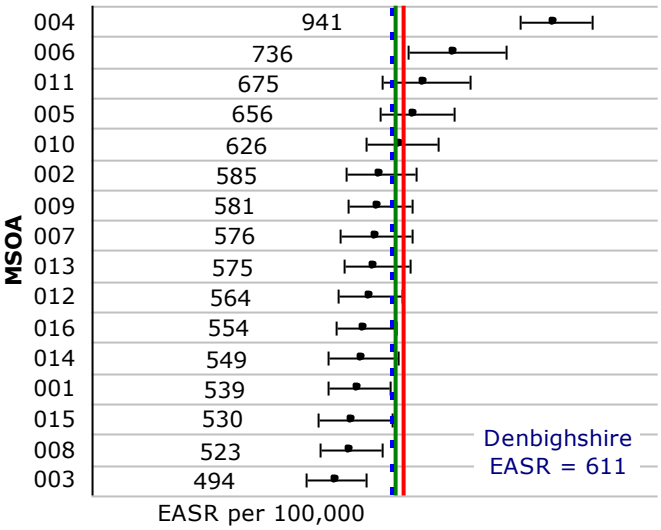
Gwynedd



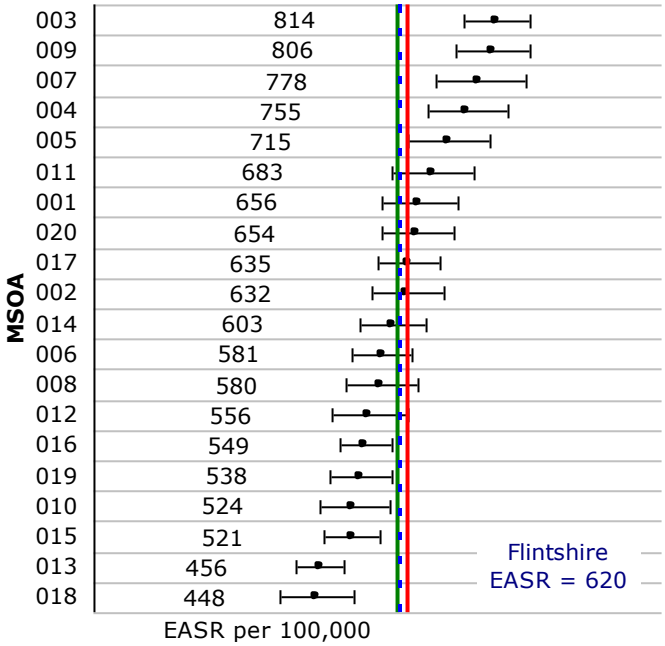
Conwy



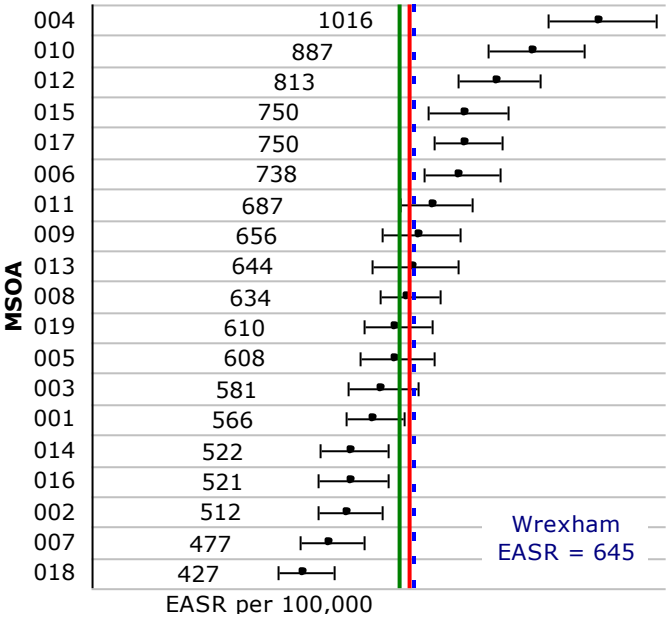
Denbighshire



Flintshire



Wrexham

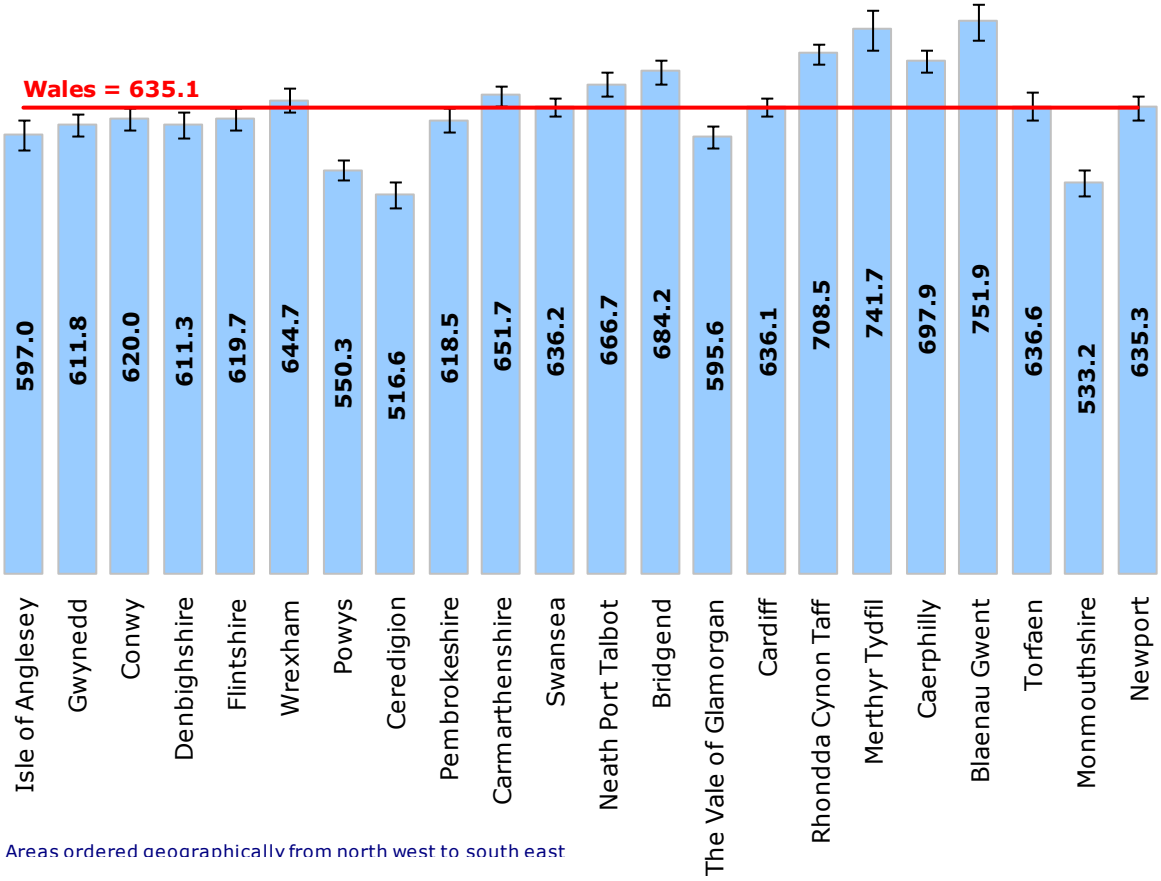


Local authorities

All cause mortality by local authority, all persons, 2004-08, European age-standardised rates per 100,000

Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)

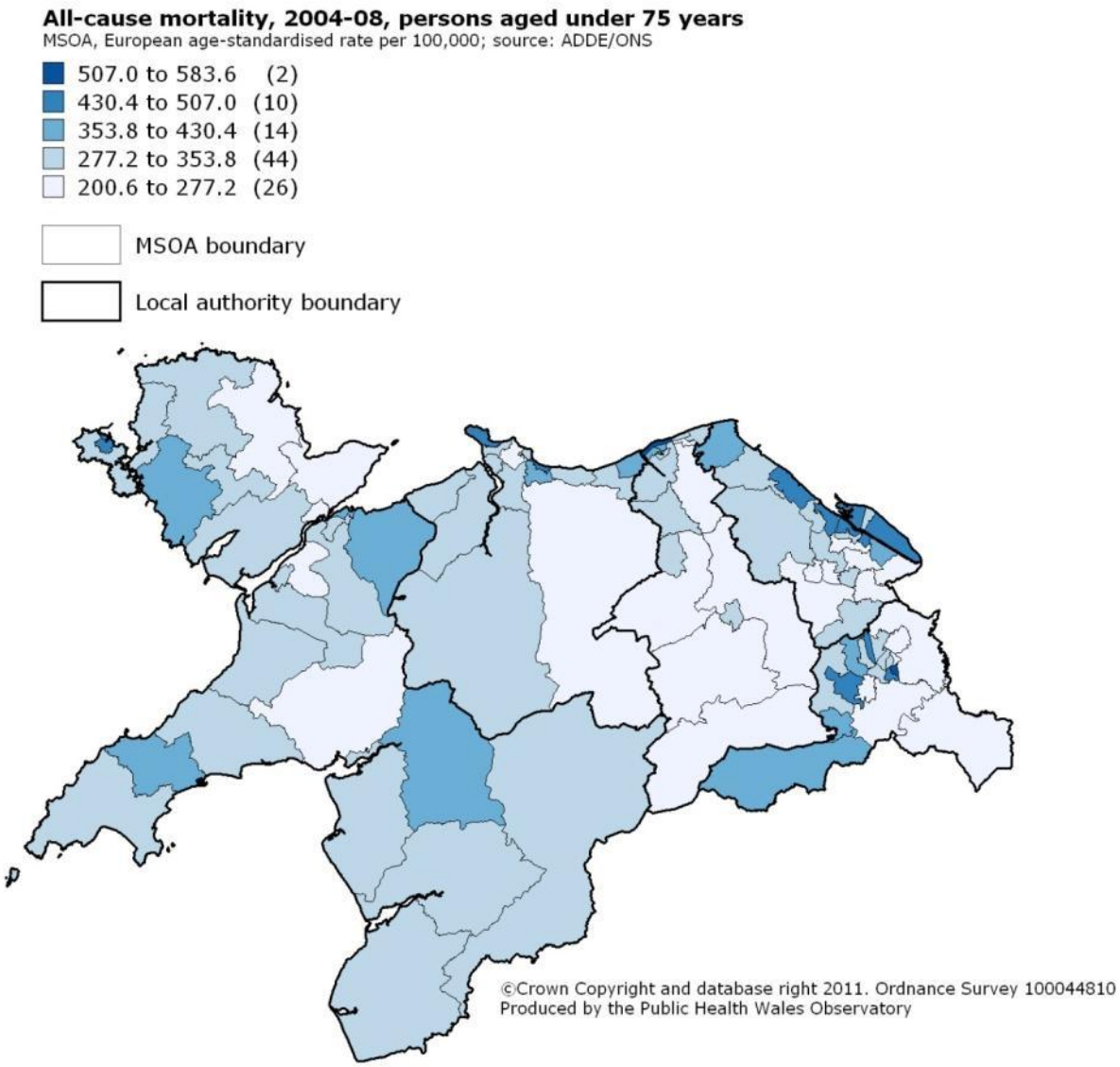
95% confidence interval



Areas ordered geographically from north west to south east

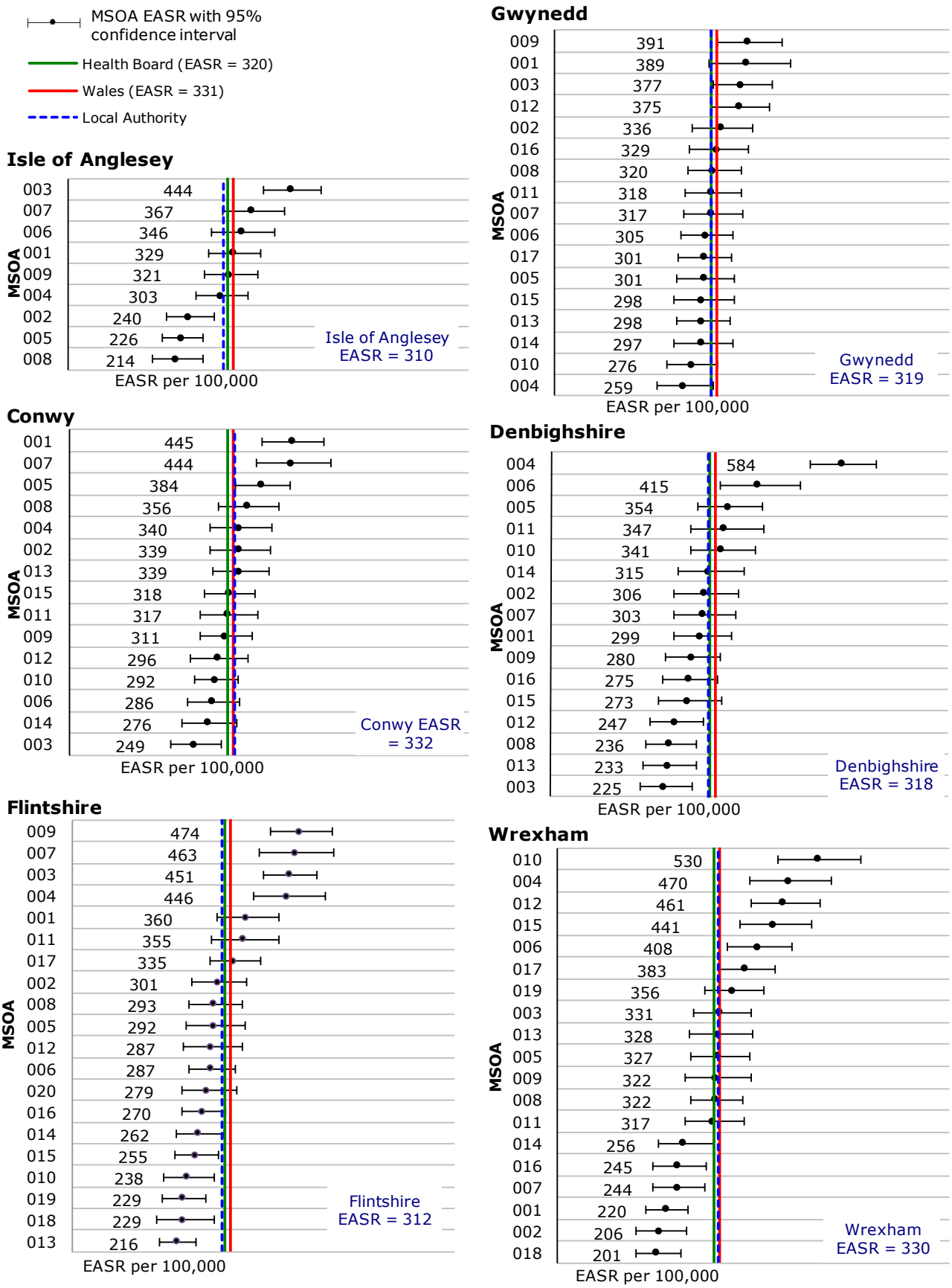
2.5.2 All-cause mortality, aged under 75

Middle super output areas



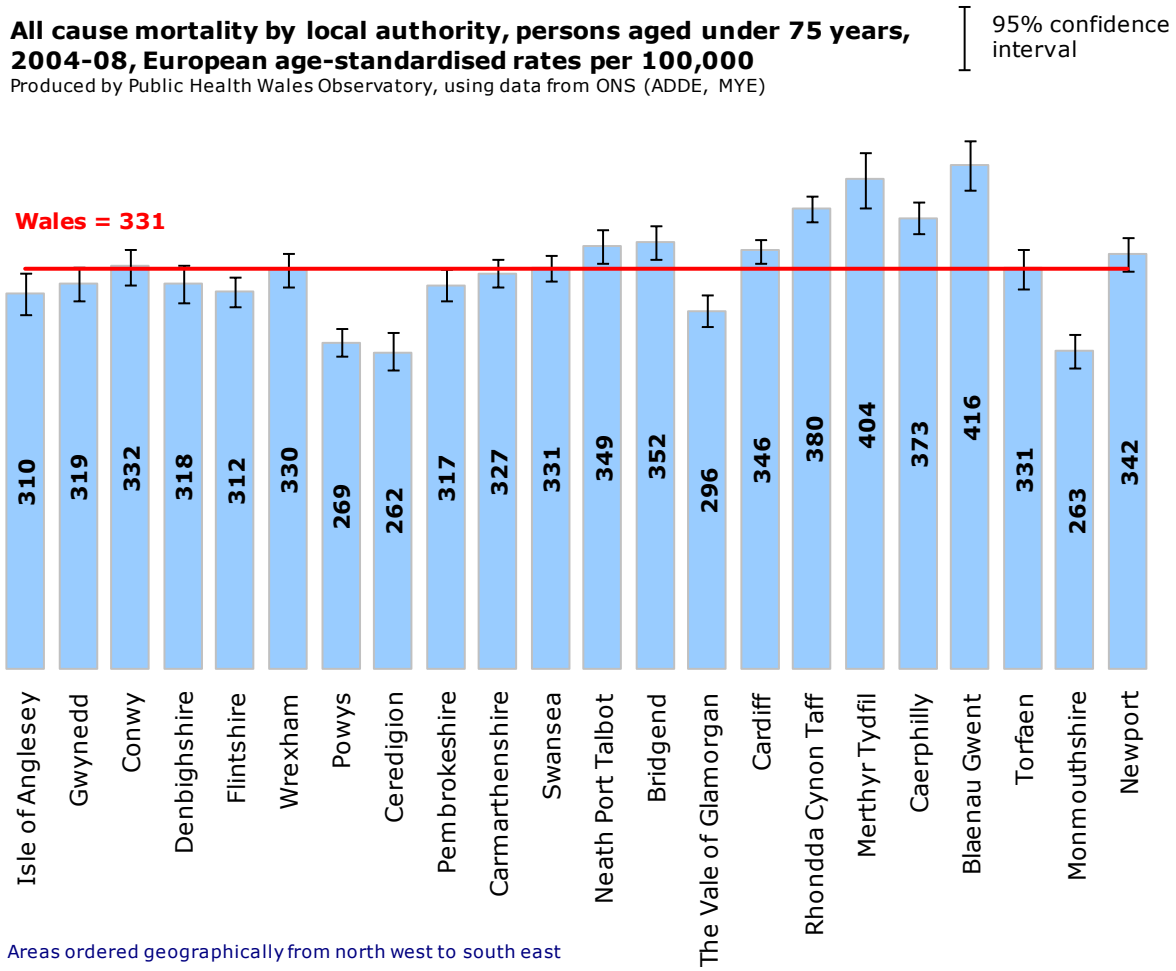
All-cause mortality in Betsi Cadwaladr University Health Board area, persons aged under 75 years, 2004-08, European age-standardised rates per 100,000

Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)



Local authorities

All cause mortality by local authority, persons aged under 75 years, 2004-08, European age-standardised rates per 100,000
Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)

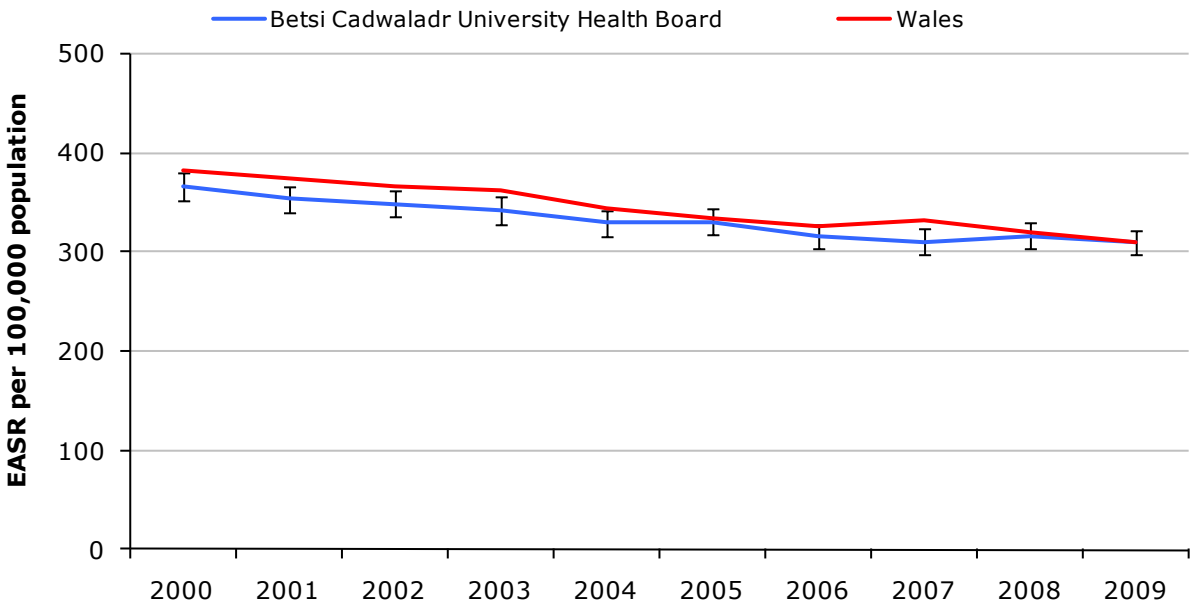


Areas ordered geographically from north west to south east

Wales and Betsi Cadwaladr University Health Board trend

All-cause mortality rate trend for Betsi Cadwaladr University Health Board, persons aged under 75: 2000 to 2009

Produced by the Public Health Wales Observatory, using data from ONS (ADDE, MYE)



3 Determinants of health

3.1 Determinants of health: key points

Pattern of deprivation

The pattern of deprivation as described by the Welsh Index of Multiple Deprivation shows that the most deprived areas are found mainly in coastal areas such as around Rhyl and Colwyn Bay in Denbighshire; Caernarfon in Gwynedd and also Wrexham. Forty-nine out of the 425 lower super output areas in the UHB (12 per cent) are among the most deprived fifth in Wales with 80 (19 per cent) in the least deprived fifth. However, within less deprived areas there are often pockets of hidden deprivation.

Analysis of the association between deprivation and poor health

The association between socioeconomic deprivation and poor health outcomes is well-established. The Public Health Wales Observatory will be publishing a profile examining the relationship over time between deprivation and mortality later this year. This chart book contains some preliminary analysis released for inclusion in Director of Public Health Annual Reports. The analysis shows that the European age-standardised all-cause mortality rate in the most deprived fifth of areas within Betsi Cadwaladr UHB is twice the rate in the least deprived fifth. The gap is very similar in males and females but across the period shown the gap has narrowed slightly in males, but widened slightly in females.

Lifestyle data

The Welsh Health Survey is a rich source of information on lifestyle. It is a self-reported survey randomly sampling around 15 thousand adults (aged 16+) per year in Wales. The sample is constructed to allow reporting at local authority level.

Lifestyle indicators in the Betsi Cadwaladr UHB area are generally better than, or similar to, the Wales average. Almost one in four people smoke, leading to over 1,300 deaths per year within the health board area. Self-reported rates are slightly lower than the Wales average in Anglesey, Conwy and Flintshire, but slightly higher in Gwynedd, Denbighshire and Wrexham.

Over 40 per cent of the population of the health board area drinks more alcohol than the recommended limits and over a quarter binge drink on at least one day a week. Hospital admissions due to alcohol are lower in males than the Wales average and similar to Wales for females. For drug related admissions, the reverse is true. In total, over 12 thousand hospital admissions and 260 deaths are caused by alcohol each year in the Betsi Cadwaladr UHB area.

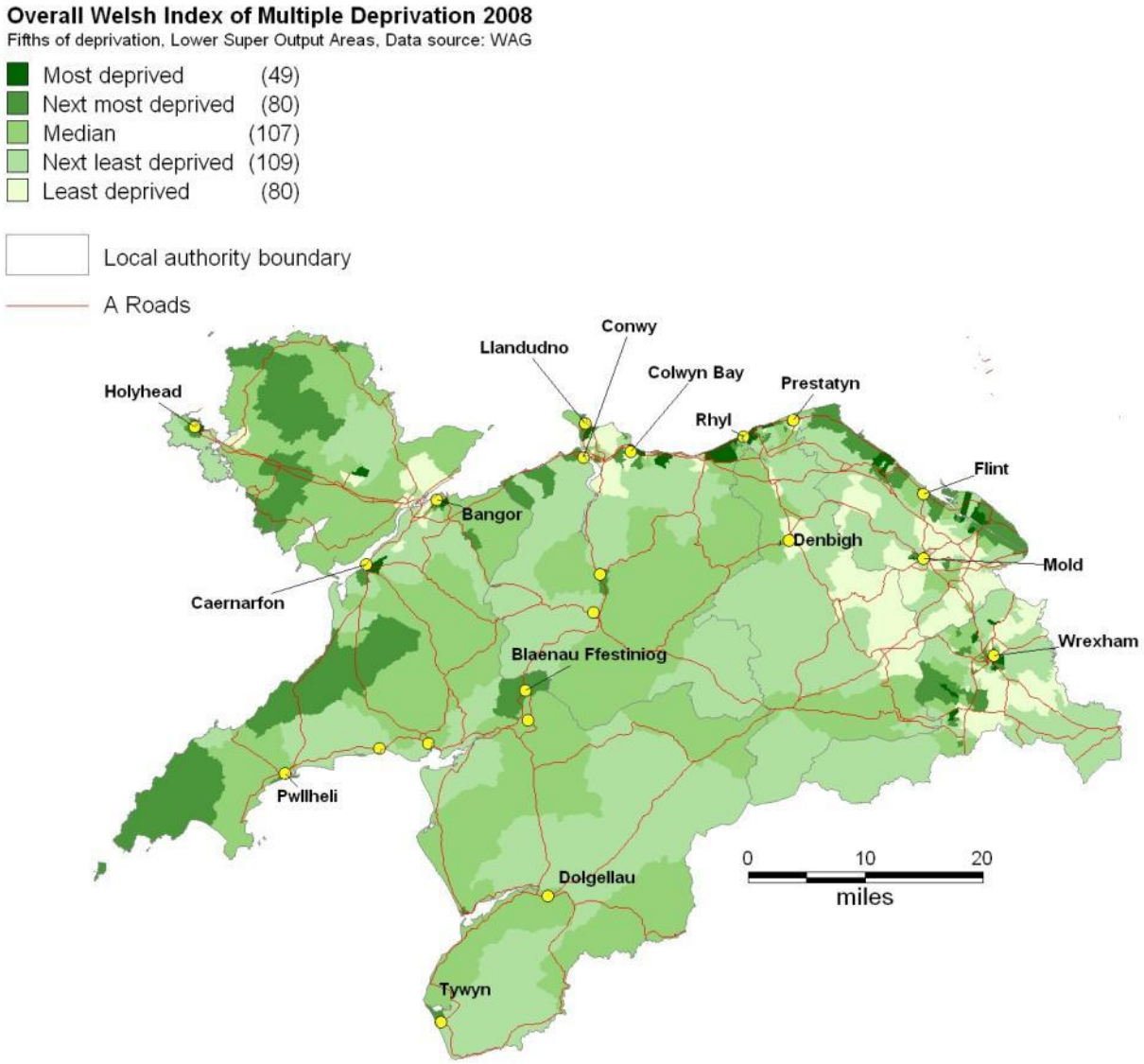
Overall, just over a third of people eat the recommended amount of fruit and vegetables, with Gwynedd achieving the highest percentage. The picture is similar for physical activity. Improving diet and physical activity are essential to reducing the high proportions of people who are overweight or obese. Between 50 and 60 per cent of adults in the health board area are either overweight or obese.

3.2 Wider determinants of health

3.2.1 Deprivation in relation to Wales

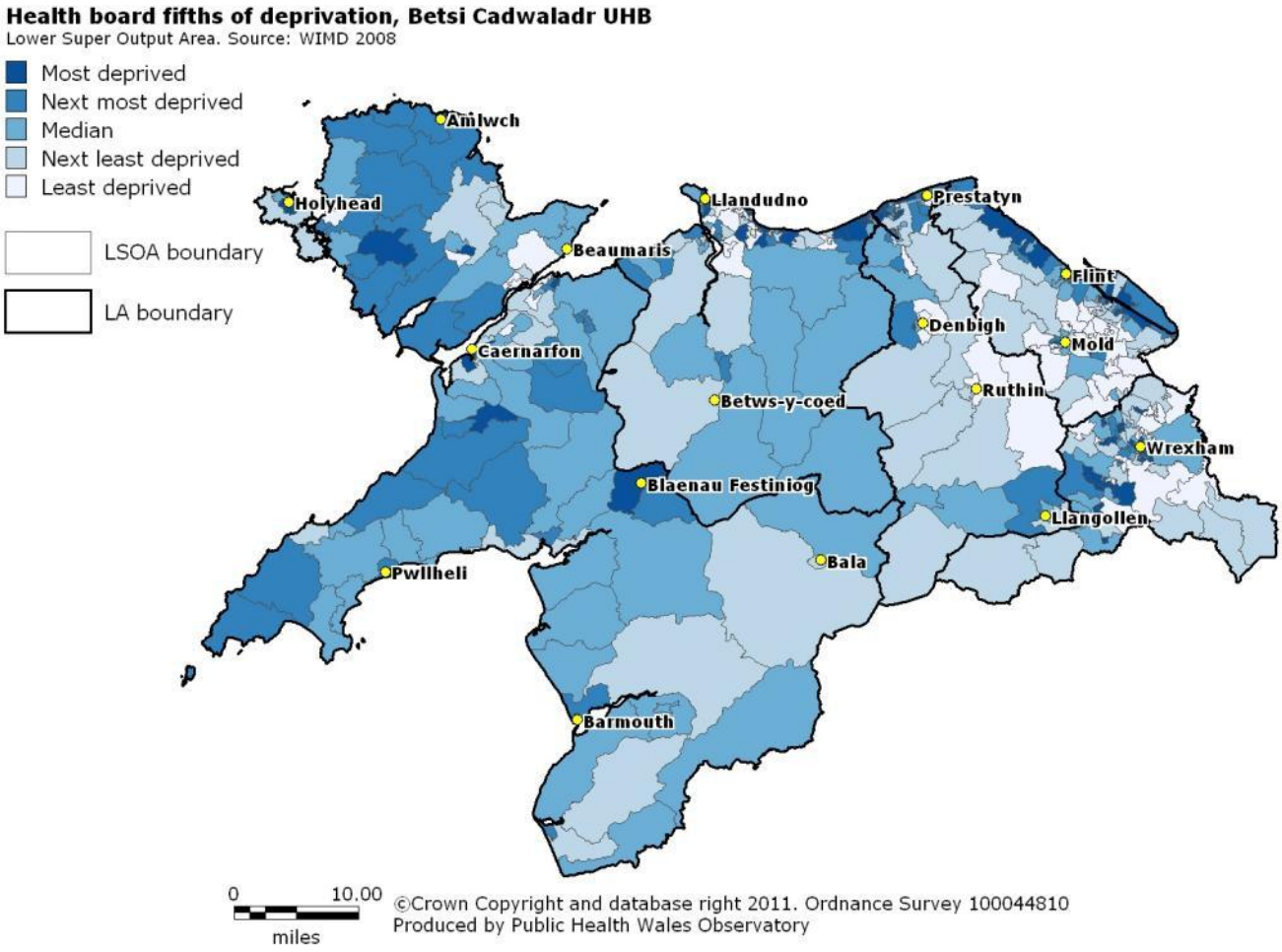
The Welsh Index of Multiple Deprivation (2008) is produced at a small area level called lower super output area, and is derived from a broad range of factors including income, employment, health, education, skills and training, community safety, housing, physical environment and access to services. It is a geographically based deprivation measure which can be used to show inequalities in health and suggest areas likely to most need measures to improve health and manage ill-health.

This map shows the level of deprivation in the health board in comparison to the rest of Wales.



3.2.2 Deprivation within the health board

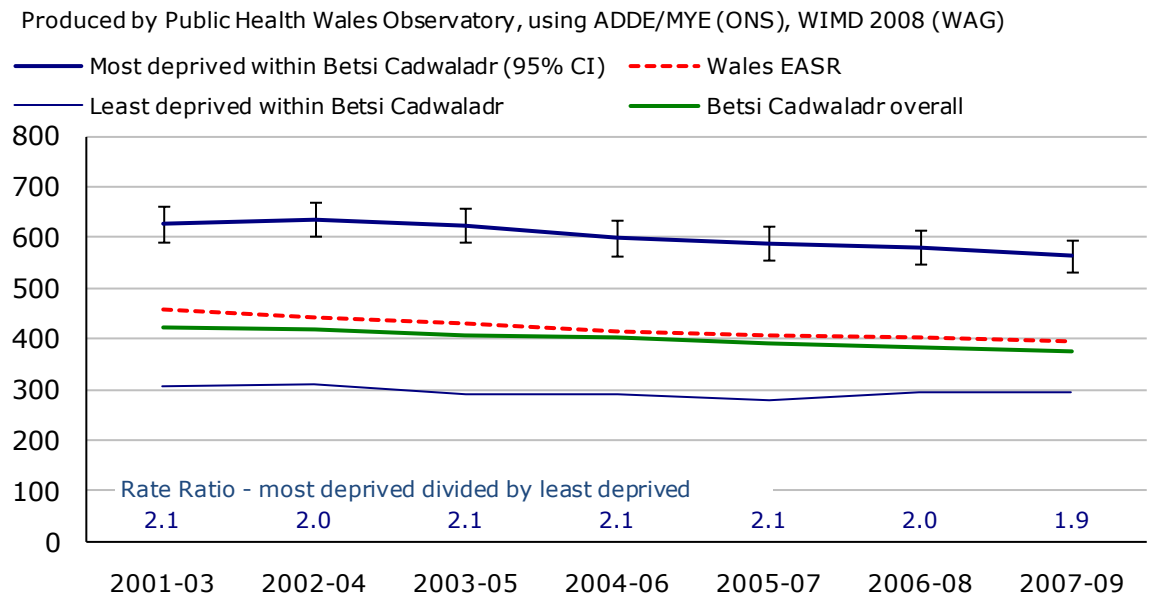
This map shows the most and least deprived fifths within the health board. It is this grouping that is used to demonstrate inequalities in mortality in the next section.



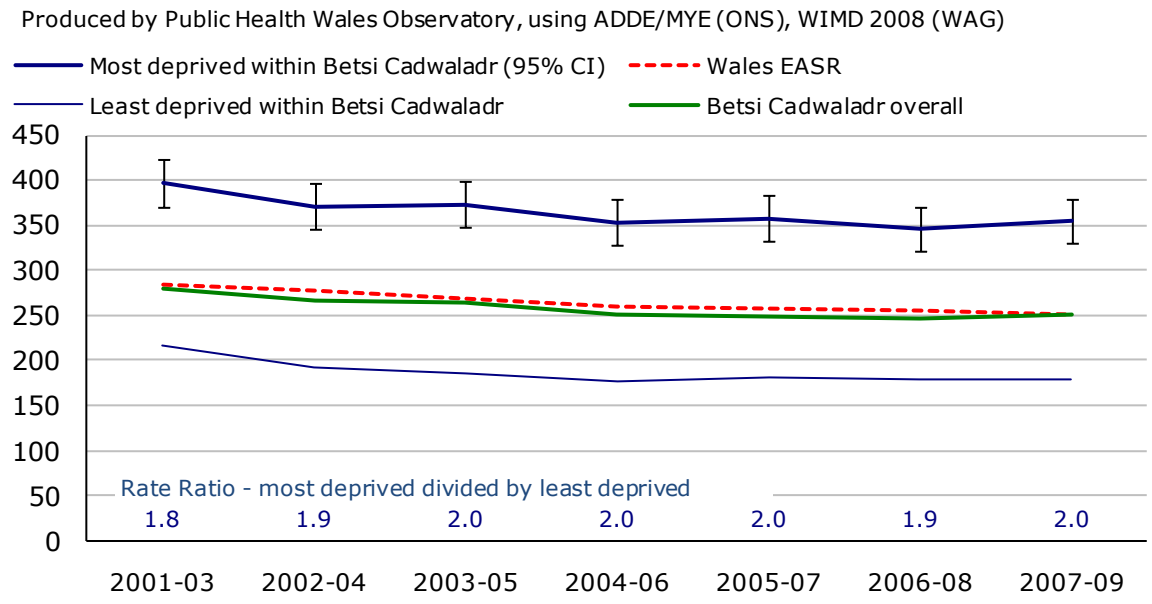
3.2.3 Inequality in all-cause mortality

These graphs compare mortality in the most deprived fifth of the health board population with the least deprived fifth of health board population.

All-cause mortality, under 75, males, European age-standardised rate (EASR) per 100,000, Betsi Cadwaladr UHB and Wales, 2001-09



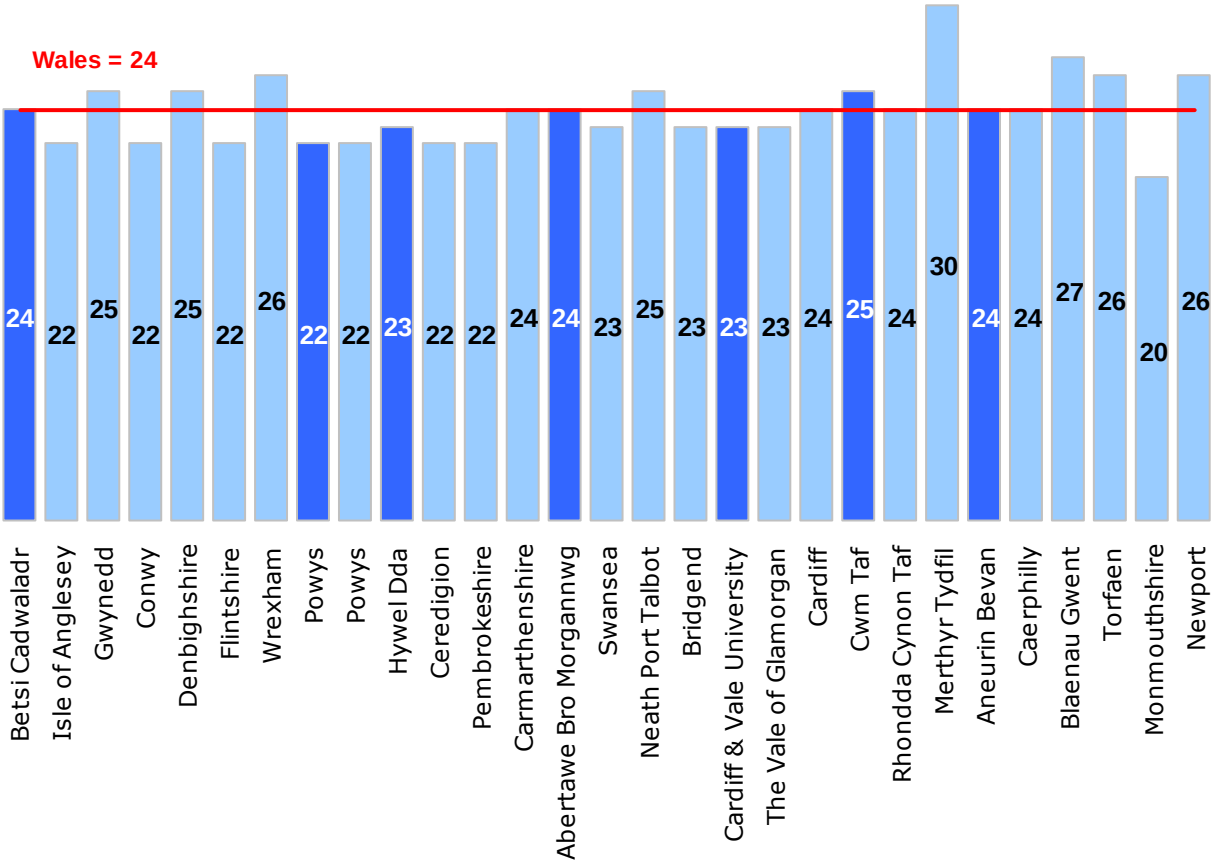
All-cause mortality, under 75, females, European age-standardised rate (EASR) per 100,000, Betsi Cadwaladr UHB and Wales, 2001-09



3.3 Lifestyle factors

3.3.1 Smoking as reported by adults

Adults who reported being a current smoker by local authority and health board, age standardised percentage, 2008-2009
Produced by Public Health Wales Observatory using data from the Welsh Health Survey, 2008 and 2009

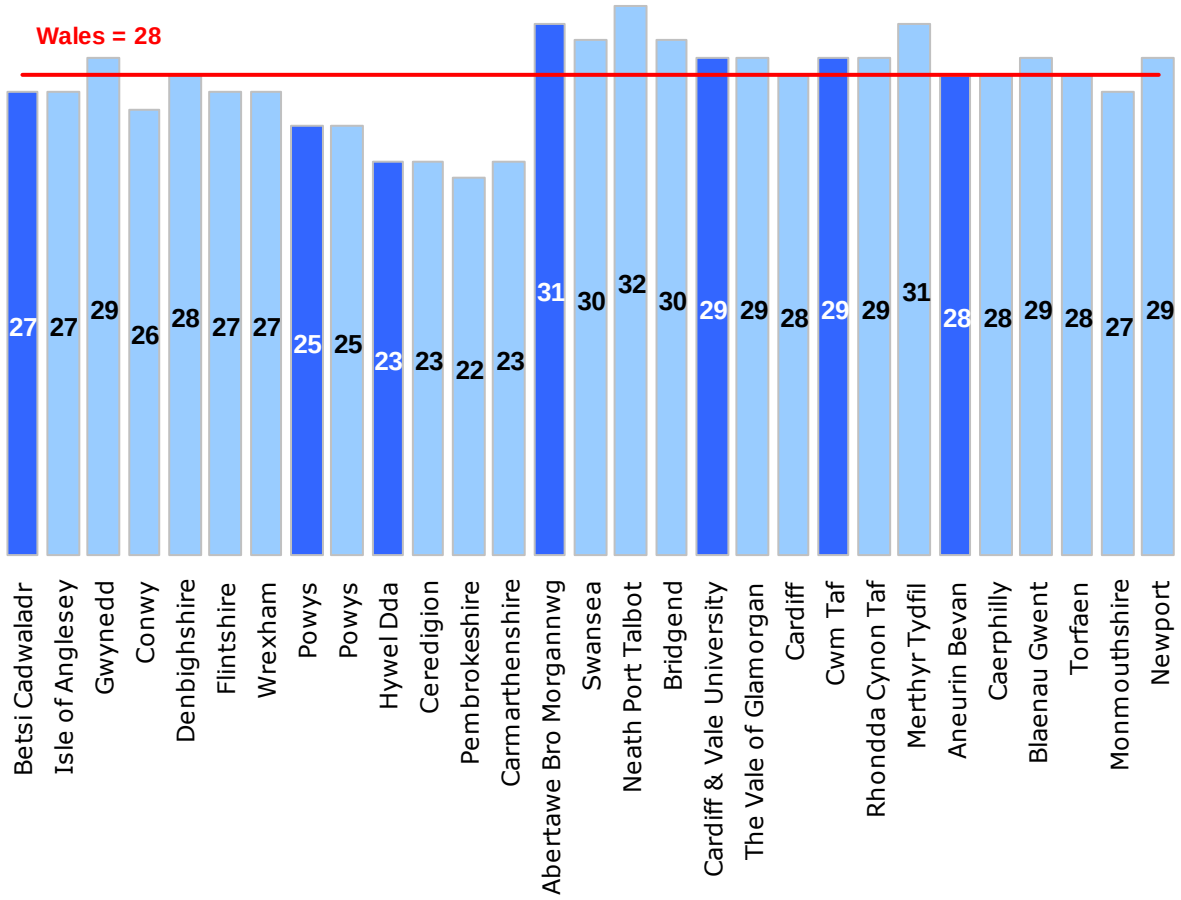


Areas ordered geographically from north west to south east

3.3.2 Binge drinking as reported by adults

Adults who reported binge drinking on at least one day in the past week by local authority and health board, age standardised percentage, 2008-2009

Produced by Public Health Wales Observatory using data from the Welsh Health Survey, 2008 and 2009

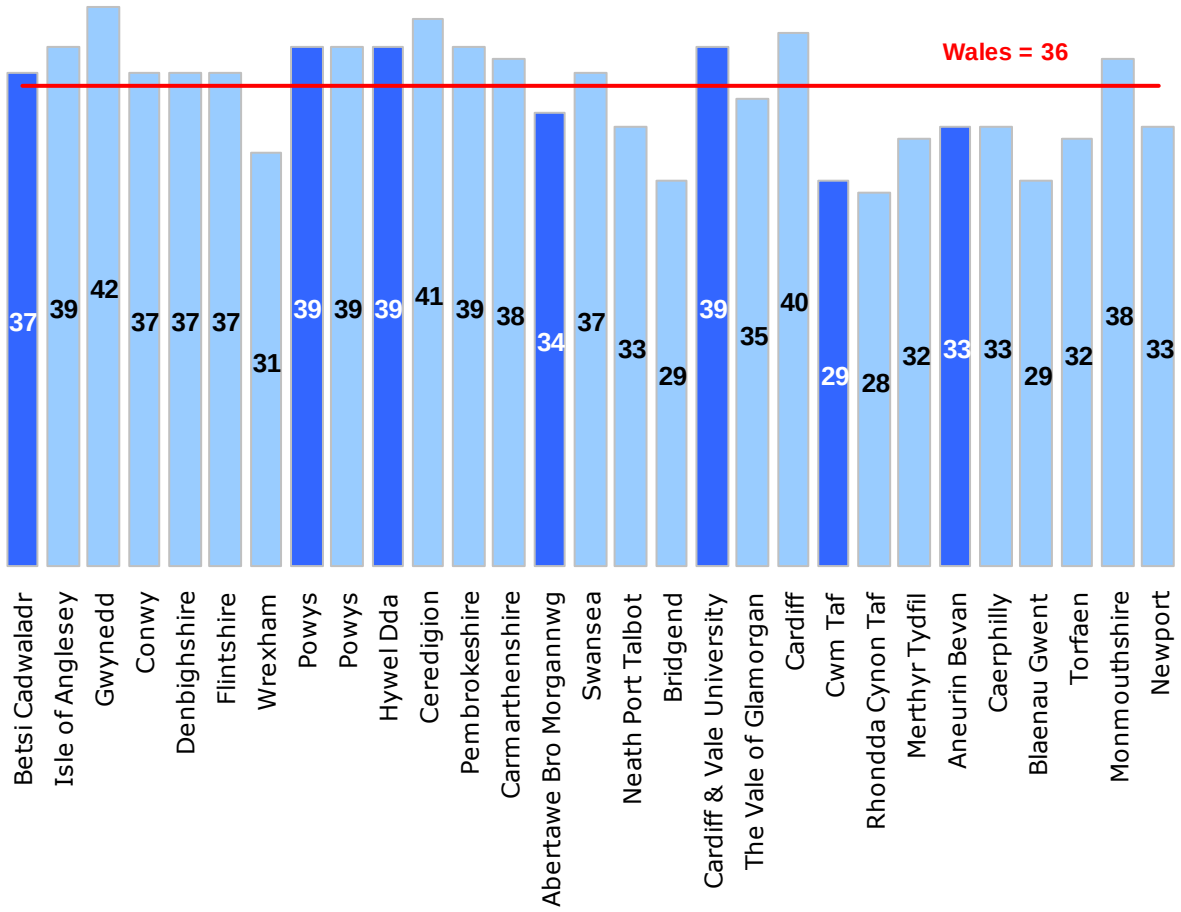


Areas ordered geographically from north west to south east

3.3.3 Five or more fruit or vegetables a day as reported by adults

Adults who reported eating five/more portions fruit/veg the previous day by local authority/health board, age standardised percentage, 2008-2009

Produced by Public Health Wales Observatory using data from the Welsh Health Survey, 2008 and 2009

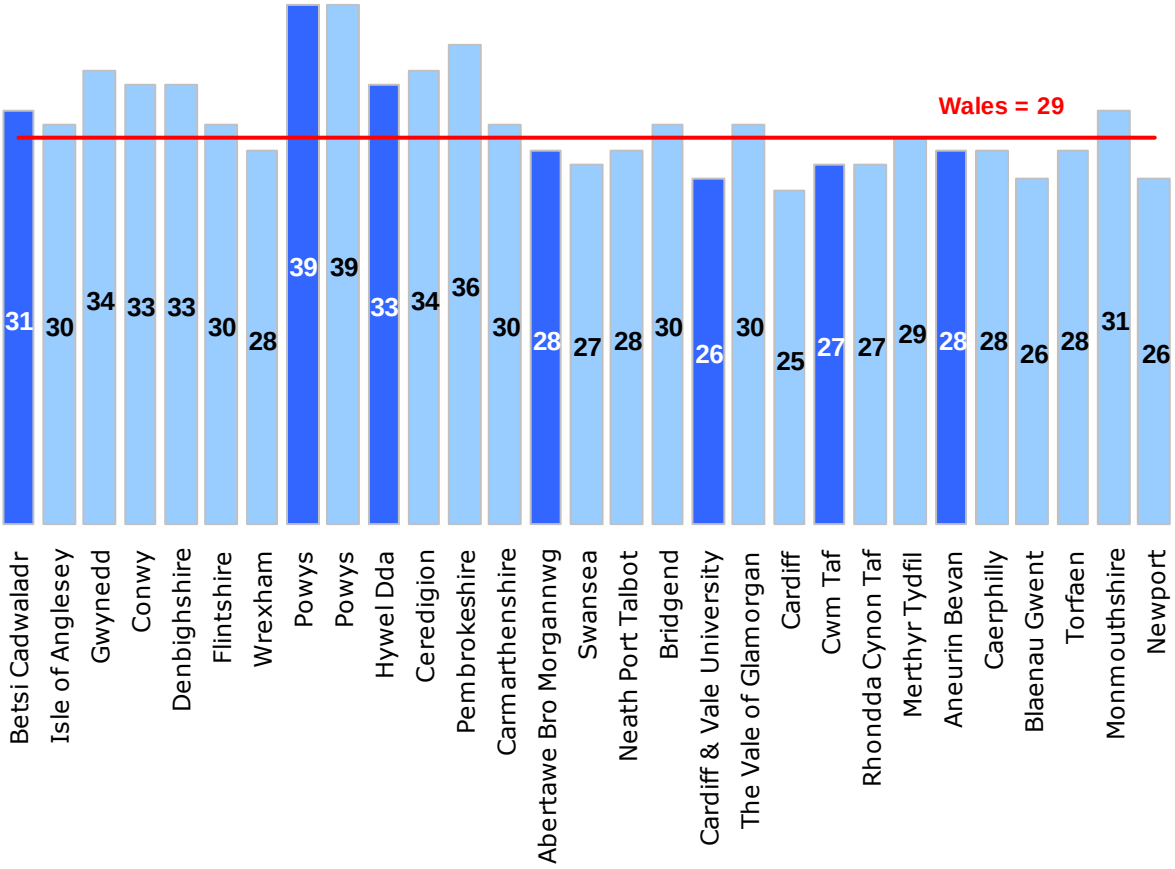


Areas ordered geographically from north west to south east

3.3.4 Physical activity as reported by adults

Adults who reported meeting physical activity guidelines in the past week by local authority/health board, age standardised percentage, 2008-2009

Produced by Public Health Wales Observatory using data from the Welsh Health Survey, 2008 and 2009

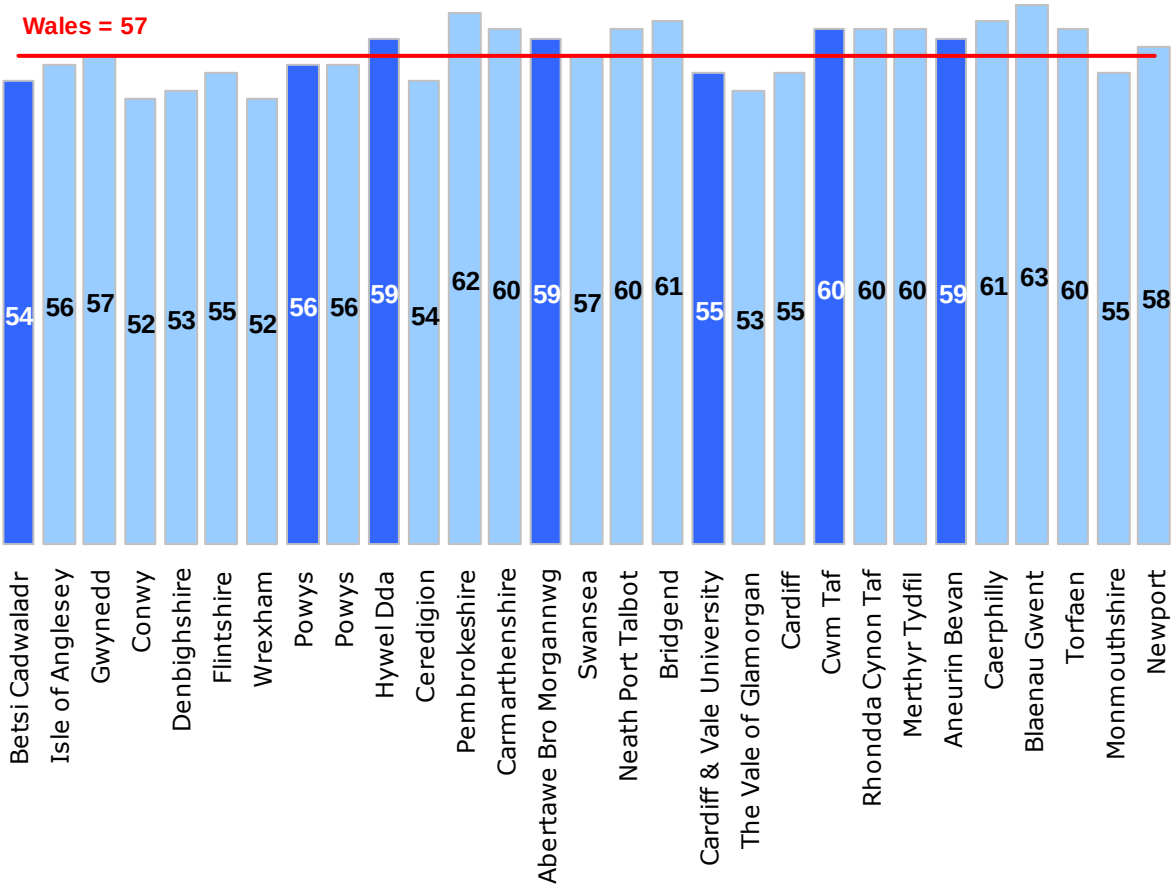


Areas ordered geographically from north west to south east

3.3.5 Overweight and obesity, adults based on self reported data

Adults who were overweight or obese by local authority and health board, age standardised percentage, 2008-2009

Produced by Public Health Wales Observatory using data from the Welsh Health Survey, 2008 and 2009



Areas ordered geographically from north west to south east

4 Use of services

4.1 Use of services: key points

Childhood immunisations

Childhood immunisation uptake rates show positive long term trends, although remain below target rates in a number of key areas. Immunisations in children under one year of age reach the 95% target. All immunisations scheduled for children in their second year of life do not reach the 95% target, and coverage of immunisations in five year olds and sixteen year olds are also below target with the exception of the target of one dose of MMR by the age of 16. MMR vaccine uptake is a particular concern given a large outbreak of measles in Wales in 2009, and ongoing outbreaks in Europe in 2011. Uptakes of one dose of MMR in two year olds and two doses in five year olds have generally improved since 2004, but a 95% uptake of two doses is needed to eliminate measles in line with WHO goals. Improving uptake of pre-school and teenage immunisation will reduce risk of outbreaks of vaccine preventable diseases in future.

Seasonal influenza vaccination

In Wales, free seasonal influenza immunisation is offered to all people aged 65 years and over, and people between 6 months and 65 years in clinical risk groups (currently chronic respiratory disease, chronic heart disease, chronic renal disease, chronic liver disease, chronic neurological conditions, diabetes mellitus, and immunosuppression), residents of long-stay care homes and those who were the main carer for an elderly or disabled person whose welfare may be at risk if the carer fell ill. For 2009/10 WAG set a target immunisation uptake rate of 70% for people aged 65 years and over. For the 2010/11 seasonal influenza immunisation campaign the national uptake target was raised to the WHO target of 75% uptake in recommended groups. This target was also put in place for those younger than 65 years in 'at-risk' groups. During the 2010/11 campaign influenza immunisation was also offered to pregnant women who were not an existing clinical risk group.

Uptake of seasonal influenza immunisation for Betsi Cadwaladr UHB in persons aged 65 years and over during 2010/11 was 7% under the target level. In persons aged under 65 years in the at risk groups, uptake during 2010/11 was 23% below the target level.

Population Based National Screening Programmes in Wales

Uptake/coverage rates in Betsi Cadwaladr UHB for the national screening programmes for bowel, breast and cervical cancer and newborn hearing screening are generally on a par with Wales overall. However, only rates for newborn hearing screening achieve the UK target rates. Cervical screening rates in the 25-64 age group falls just short of the target. Rates for breast cancer screening in Conwy and bowel cancer screening in Wrexham are noticeably lower than in the other local authorities.

Primary care services

The latest Welsh Health Survey data show that age-standardised percentages of primary care service use by adults in Betsi Cadwaladr UHB are broadly slightly lower than those for Wales as a whole, visits to a dentist in the past 12 months being the exception. This may be related to access issues associated with rural areas of the health board.

Use of secondary and tertiary care

Age-standardised overall hospital admission rates in persons aged under 75 years for 2009 in Betsi Cadwaladr UHB show that overall rates are slightly lower than the Wales average. The rate varies from 128 per 1,000 in Wrexham to 157 in Anglesey. At the MSOA level there is considerable variation. Rates are highest in Rhyl; in the Wynnstay, Queensway, Cartrefle areas of Wrexham; Caernarfon in Gwynedd and in Holyhead in Anglesey. Rates are generally lower in rural areas of the health board.

Looking at emergency admissions in this age group, the health board rate is slightly lower than that for Wales. At local authority level, once again the rate is lowest in Wrexham and highest in Anglesey. At the MSOA level the rate varies greatly (more than for all admissions). Rates are highest in Rhyl, and in the Wynnstay; Queensway and Cartrefle areas of Wrexham. High rates of emergency hospital admission may be indicative of inadequate self-care and primary care services. As with all admissions, lower rates are found in more rural areas of the health board in areas such as the Rossett and Gresford area north of Wrexham; the central areas of Denbighshire; the Caergwrle, Hope and Llanfynydd areas in Flintshire and the southern areas of Gwynedd.

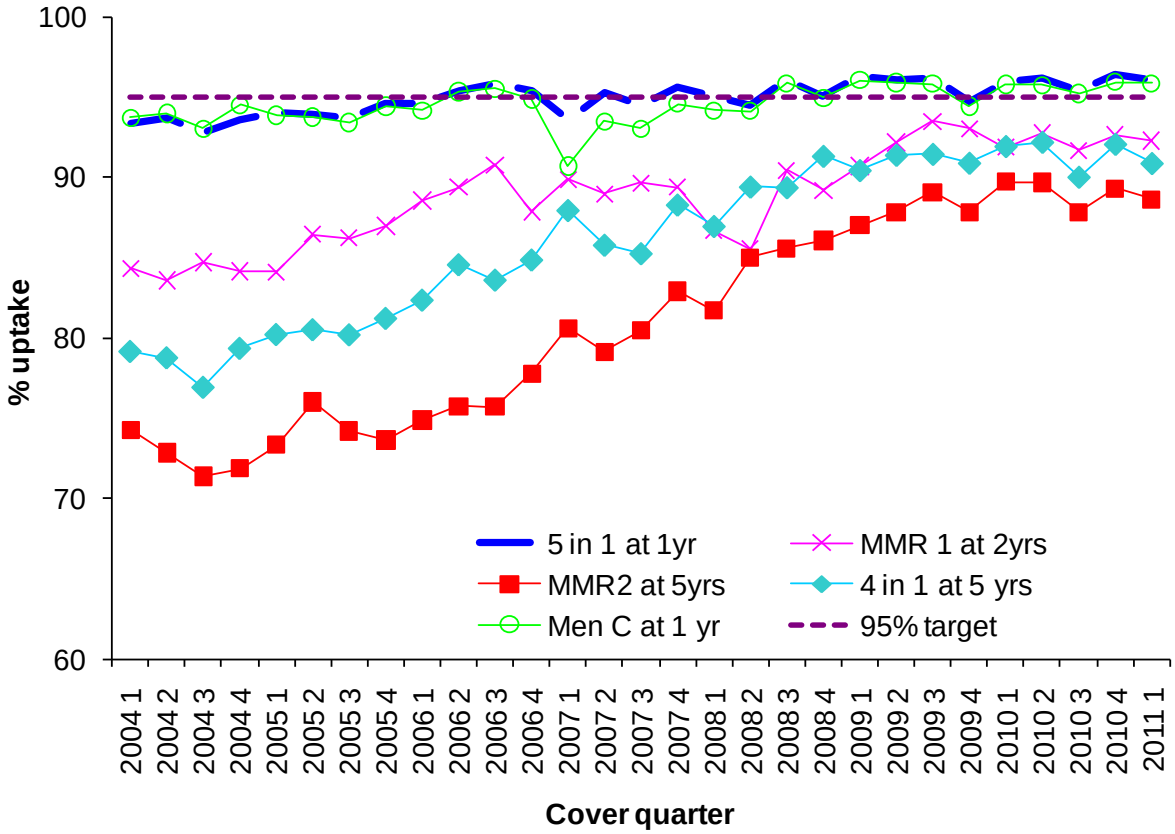
The health board elective admission rate is slightly below that for Wales. At local authority level, again the rate is lowest in Wrexham and highest in Anglesey. At the MSOA level, there is less variation in the rate than for emergency admissions. The pattern also differs from emergency admissions. The highest rates are found towards the west of the health board area in places like Holyhead and Bodffordd on Anglesey; and in the Caernarfon, Deiniolen and Llanberis areas of Gwynedd. Rates are lowest in eastern parts of Wrexham local authority area such as Overton, Bronington, Holt and Gresford.

4.2 Prevention services: vaccination uptake

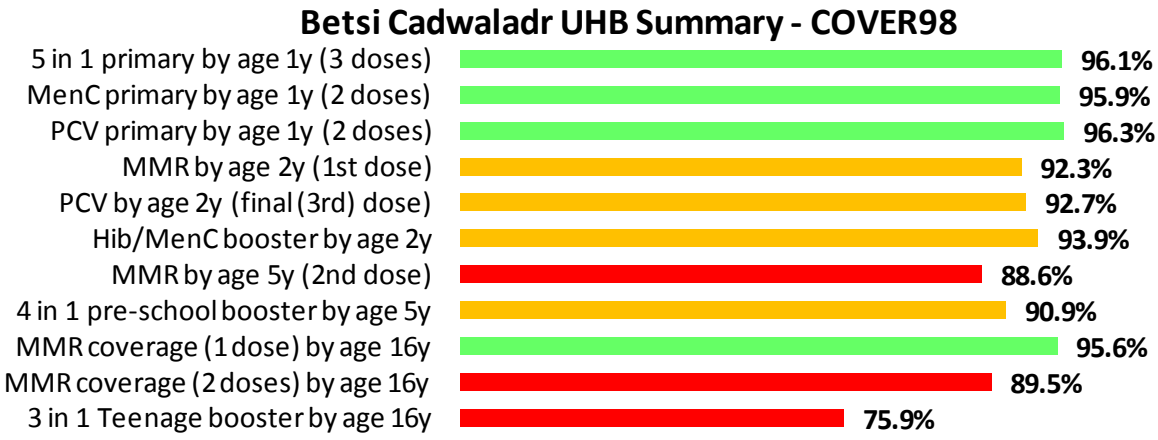
Note: Y-axes in the graphs of this section are truncated

4.2.1 Childhood immunisations

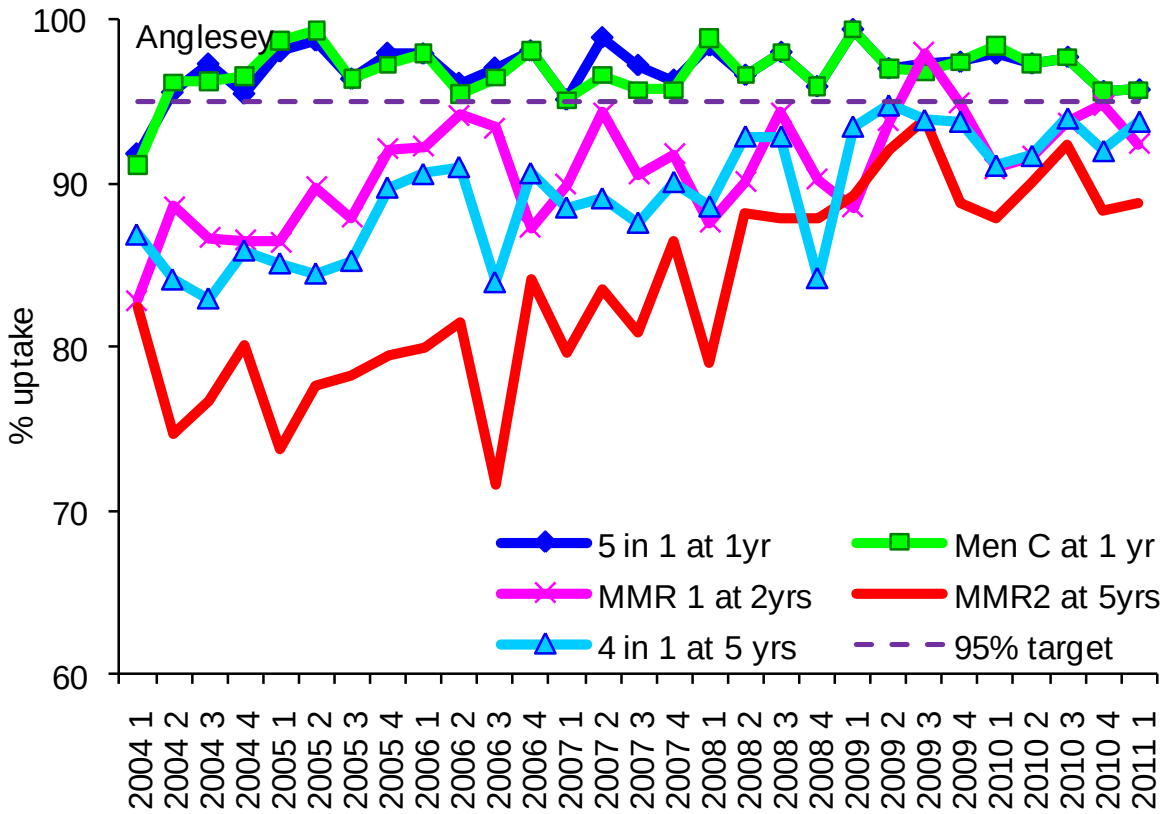
Routine childhood immunisation Betsi Cadwaladr University Health Board area, trends 2004-2011
Produced by Public Health Wales Vaccine Preventable Disease Programme, from the Public Health Wales COVER reports



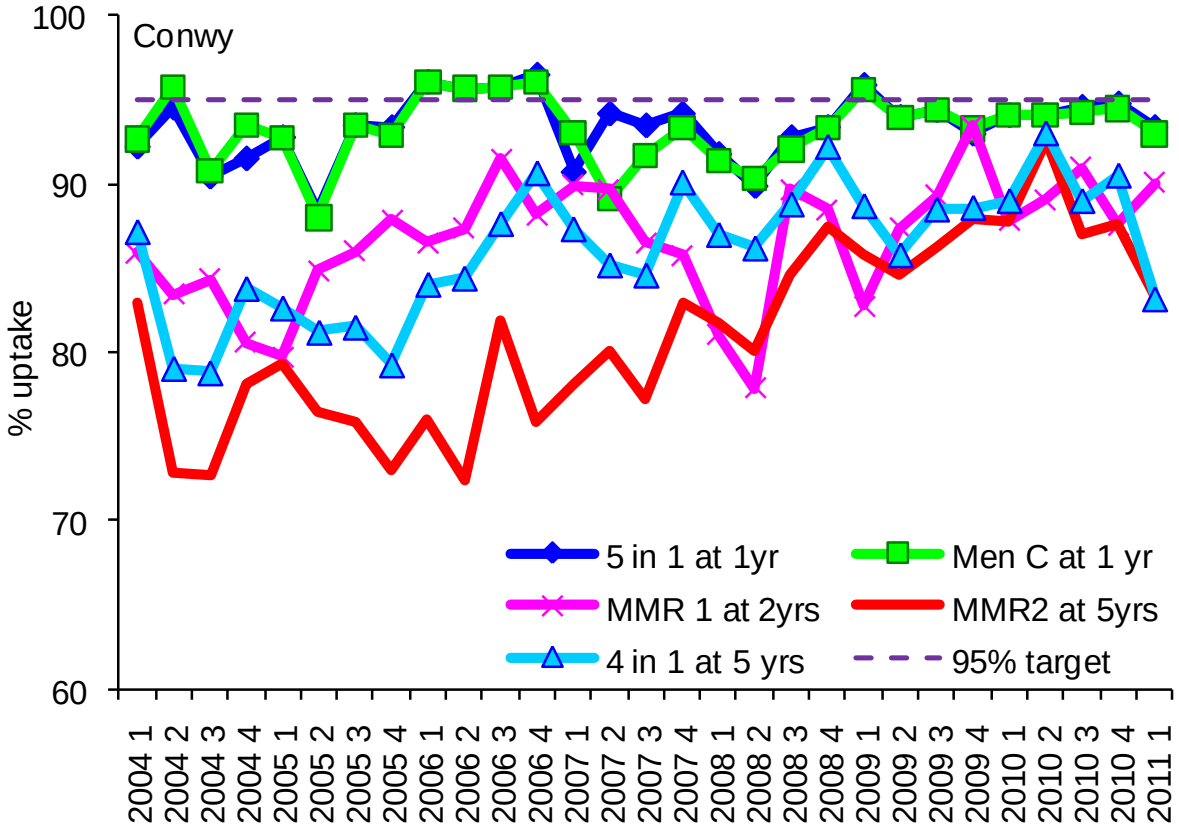
Routine childhood immunisation Betsi Cadwaladr University Health Board area, 2011 quarter 1
Produced by Public Health Wales Vaccine Preventable Disease Programme, from the Public Health Wales COVER reports



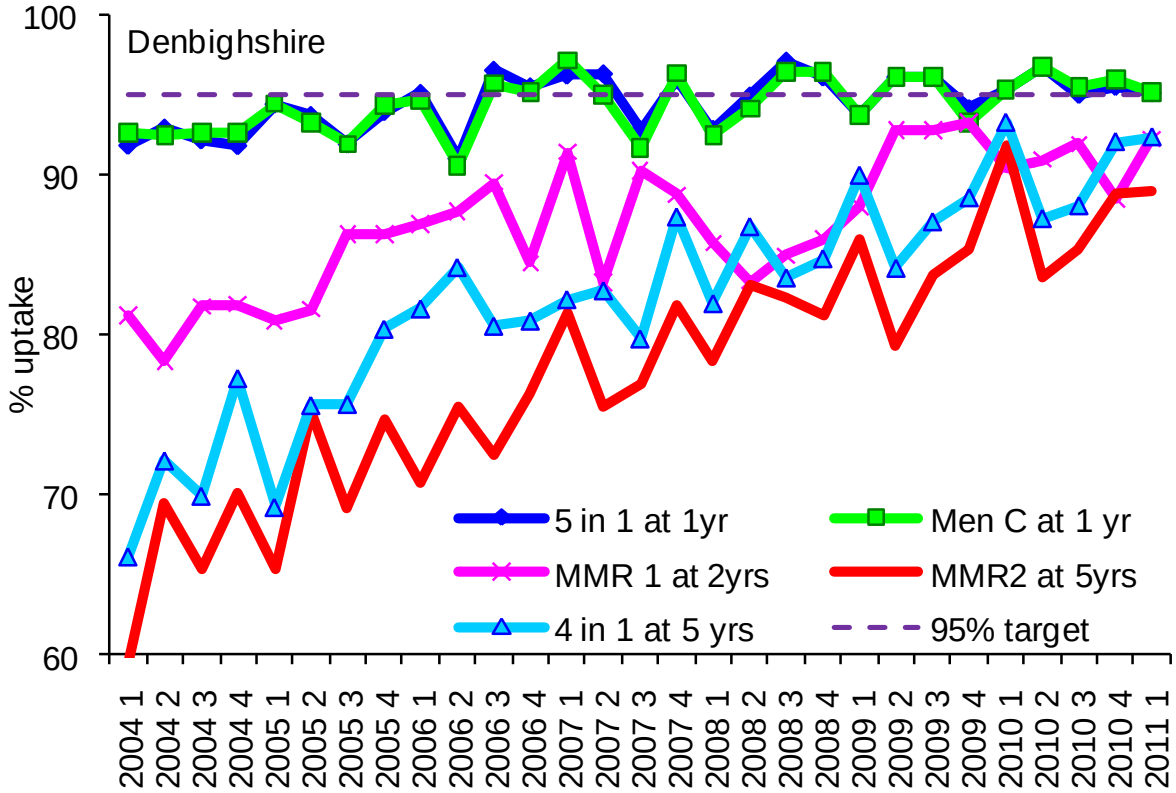
Routine childhood immunisation Isle of Anglesey local authority area, trends 2004-2011
Produced by Public Health Wales Vaccine Preventable Disease Programme, from the Public Health Wales COVER reports



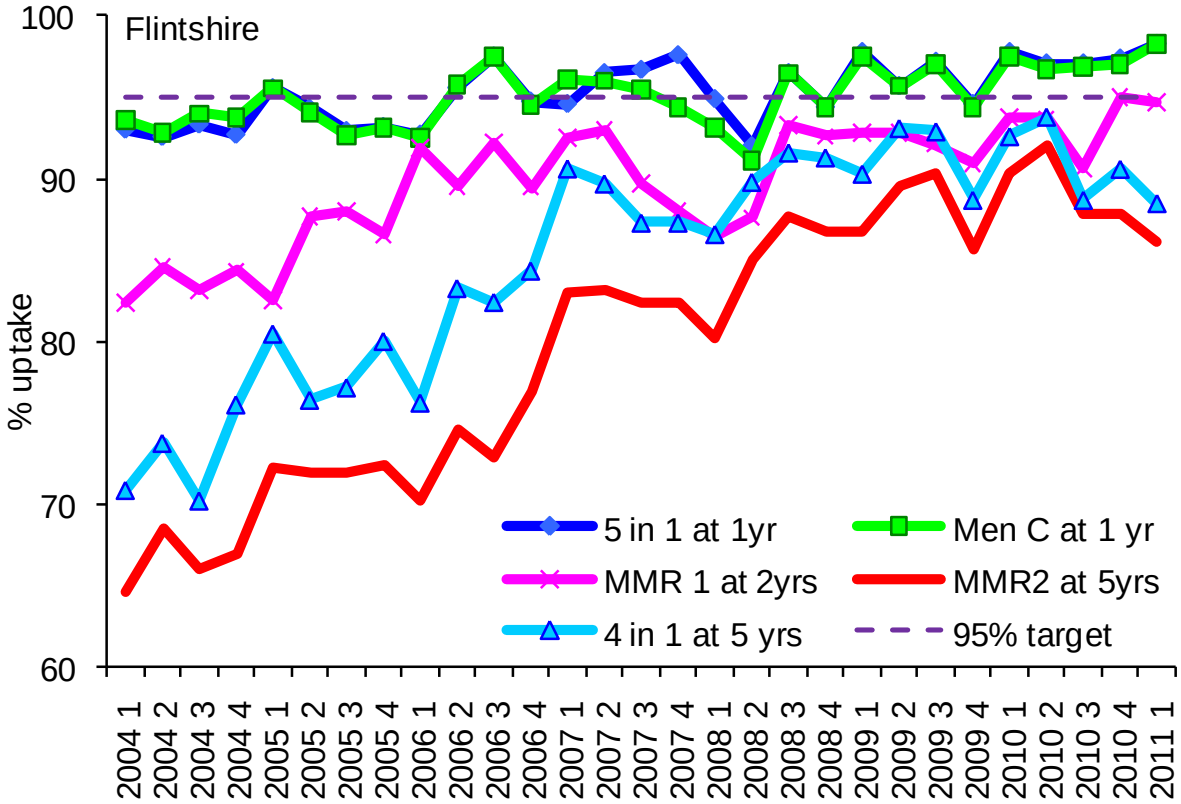
Routine childhood immunisation Conwy local authority area, trends 2004-2011
Produced by Public Health Wales Vaccine Preventable Disease Programme, from the Public Health Wales COVER reports



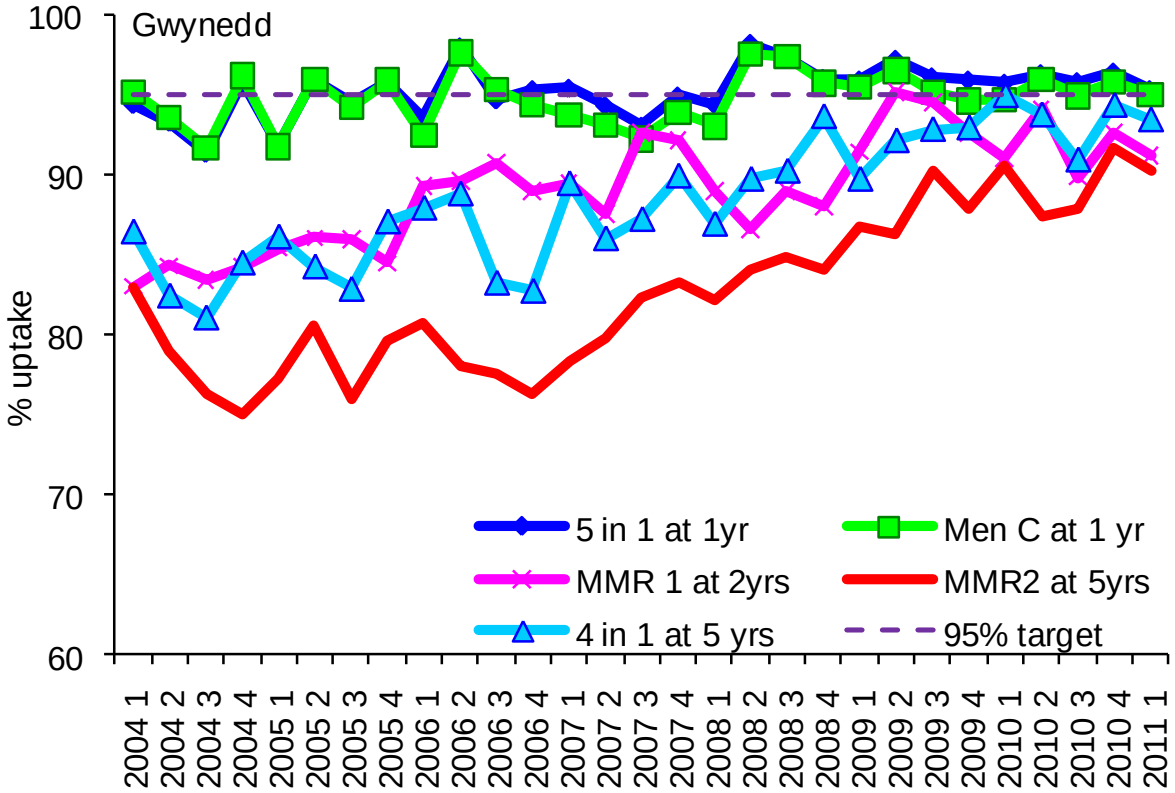
Routine childhood immunisation Denbighshire local authority area, trends 2004-2011
Produced by Public Health Wales Vaccine Preventable Disease Programme, from the Public Health Wales COVER reports



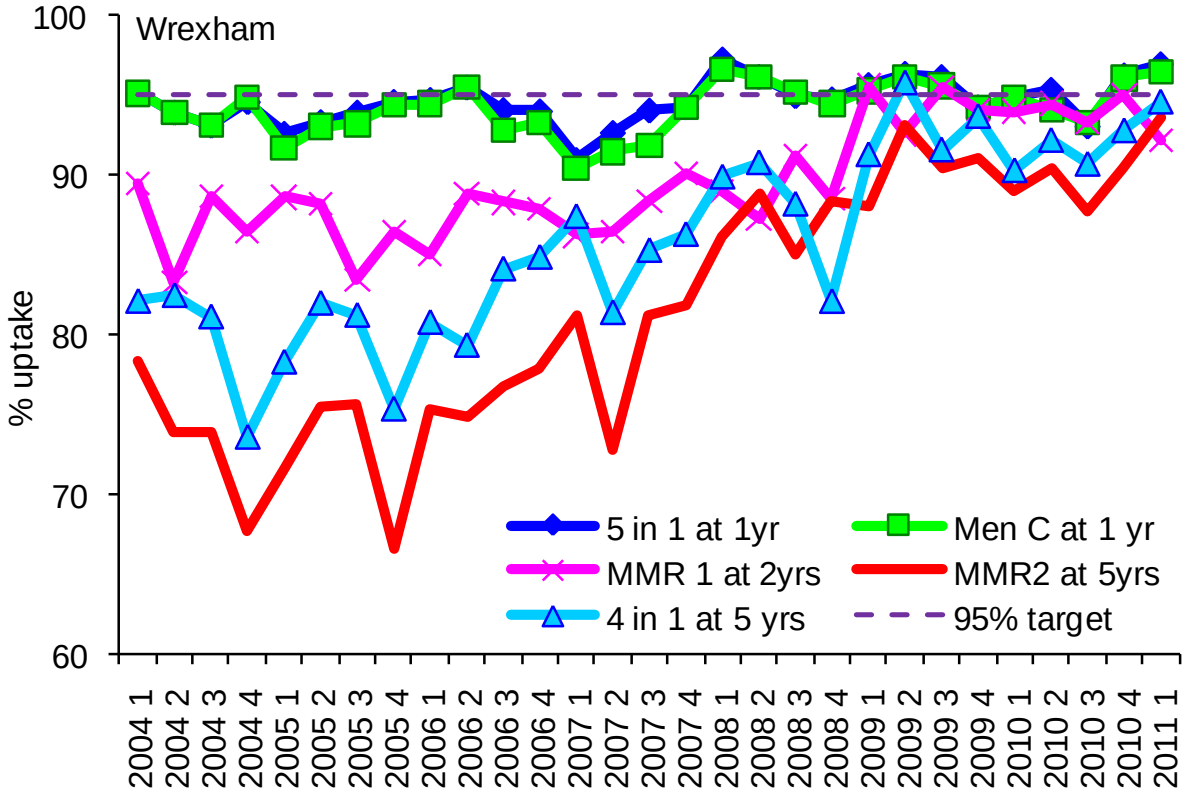
Routine childhood immunisation Flintshire local authority area, trends 2004-2011
Produced by Public Health Wales Vaccine Preventable Disease Programme, from the Public Health Wales COVER reports



Routine childhood immunisation Gwynedd local authority area, trends 2004-2011
Produced by Public Health Wales Vaccine Preventable Disease Programme, from the Public Health Wales COVER reports



Routine childhood immunisation Wrexham local authority area, trends 2004-2011
Produced by Public Health Wales Vaccine Preventable Disease Programme, from the Public Health Wales COVER reports



4.2.2 Seasonal influenza vaccination

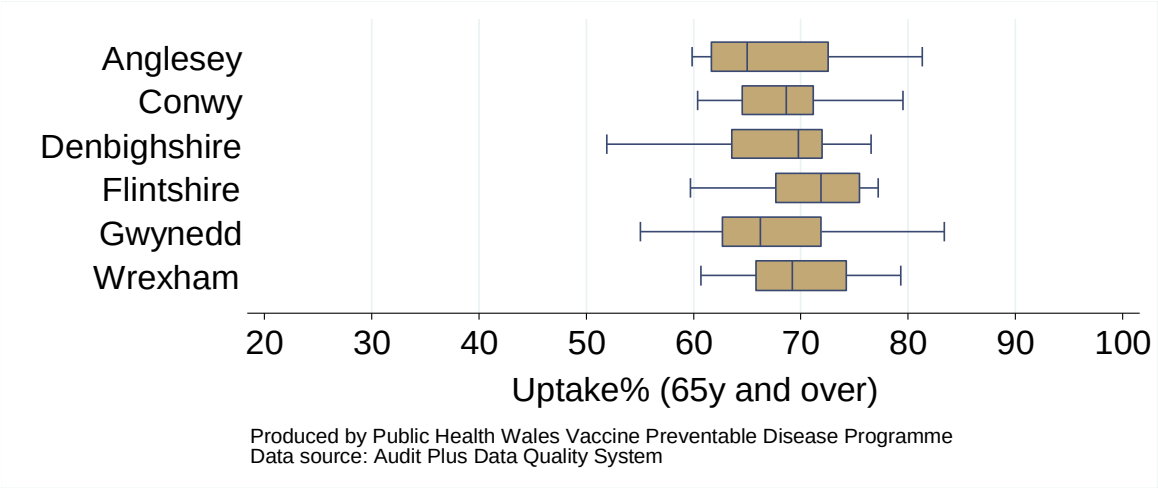
Uptake of seasonal influenza immunisation in Betsi Cadwaladr University Health Board, 2010/2011

Produced by Public Health Wales Vaccine Preventable Disease Programme, data source: Audit +

	Patients aged 65y and over			Patients aged under 65y at risk		
	Total patients	Patients immunised	Uptake (%)	Total patients	Patients immunised	Uptake (%)
Anglesey	14,460	9,322	64.5	6,720	3,356	49.9
Conwy	27,377	18,460	67.4	10,990	5,624	51.2
Denbighshire	20,964	14,288	68.2	10,469	5,167	49.4
Flintshire	25,879	18,247	70.5	14,830	7,960	53.7
Gwynedd	24,471	16,164	66.1	11,058	5,479	49.5
Wrexham	24,635	17,535	71.2	13,502	7,579	56.1
UHB total	**137,786**	**94,016**	**68.2**	**67,569**	**35,165**	**52.0**

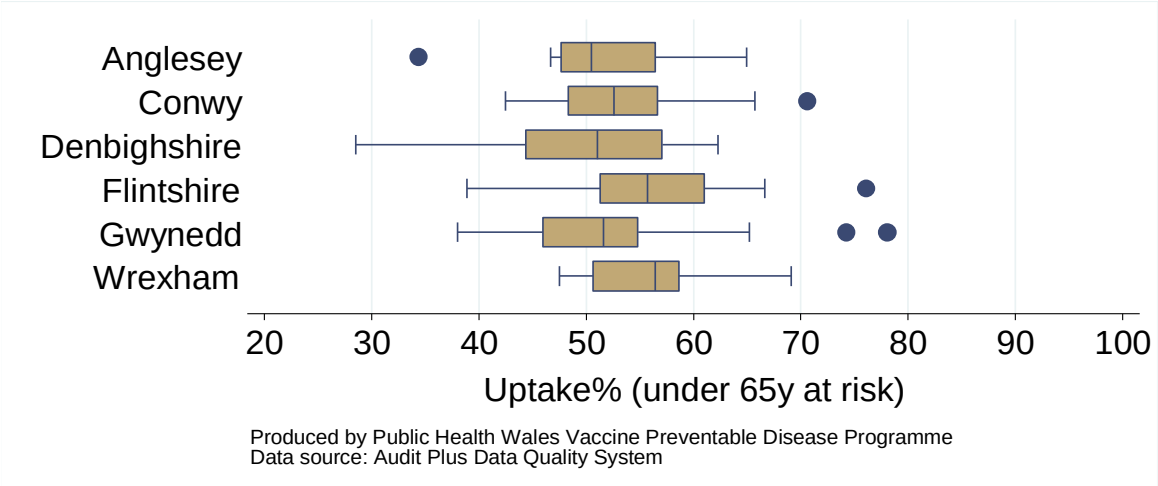
Distribution of practice level seasonal influenza immunisation uptake rates (patients aged 65 years and over), Betsi Cadwaladr University Health Board, 2010/2011

Produced by Public Health Wales Vaccine Preventable Disease Programme, data source: Audit +



Distribution of practice level seasonal influenza immunisation uptake rates (patients aged under 65 years at risk), Betsi Cadwaladr University Health Board, 2010/2011

Produced by Public Health Wales Vaccine Preventable Disease Programme, data source: Audit +



The line inside the shaded box represents the median practice uptake rate (half of the local authority practices have an uptake higher than the median value and half have an uptake lower than the median value). The shaded box represents the spread in uptake rates of the central 50% of practices, this is called the interquartile range. The whiskers extending above and below the shaded box represent the spread in practice uptake rates for the majority of practices within the local authority. Any practices with uptake rates that are very different from the majority of practices within the local authority are termed 'outliers' and appear as dots outside the whiskers.

4.3 Population Based National Screening Programmes in Wales

Screening is a process of identifying apparently healthy people who may be at increased risk of a disease or condition. They can then be offered information, further tests and appropriate treatment to reduce their risk and/or any complications arising from the disease or condition.

In the context of screening programmes:

Uptake is the proportion of people routinely invited for screening for who a screening test result is recorded within the same invitation episode. Uptake is an important measure of the acceptability of a screening programme. There are minimum uptake standards and targets set for each of the programmes.

Coverage is the proportion of people resident and eligible at a particular point in time who have been screened at least once in a defined time period (dependent on the screening interval of the different programmes).

4.3.1 Uptake of national screening programmes in Wales

Uptake of breast, bowel, cervical and newborn screening programme statistics for Betsi Cadwaladr University Health Board area, period 1 April 2009-31 March 2010 compared to all Wales

Produced by Screening Division, Public Health Wales

Screening programme	Age range / Test frequency in Wales	UK target rate	Wales rate	Betsi Cadwaladr University	Angelsey	Conwy	Denbigh shire	Flintshire	Gwynedd	Wrexham
Bowel Screening[1]	Currently 60-69 years / every 2 years	Uptake: 60%	55.3%	54.1%	59.3%	54.5%	53.7%	53.9%	57.2%	48.2%
Breast Screening[2]	50-70 years / every 3 years	Uptake: Minimum 70%, Target 80%	76.2%	73.3%	78.8%	64.3%	72.2%	71.1%	74.0%	71.3%
Cervical Screening[3] (aged 20-64)	20-64 years / every 3 years	Coverage: 80% at 5 years (aged 25-64)	76.2%	76.5%	76.8%	76.3%	76.3%	78.0%	74.3%	76.9%
Cervical Screening[4] (aged 25-64)	20-64 years / every 3 years	Coverage: 80% at 5 years (aged 25-64)	79.5%	79.5%	79.3%	79.0%	79.1%	80.4%	79.0%	79.9%
Newborn Hearing Screening[5]	Newborn babies / within first month of birth	Uptake: 95%	99.7%	99.9%	100.0%	100.0%	99.9%	99.9%	100.0%	99.8%

Notes

1 Bowel: Uptake of people invited April 2009 to end of March 2010

2 Breast: uptake stated (of those routinely invited, number screened)

3 Cervical (aged 20-64): coverage stated, tested within 5 years

4 Cervical (aged 25-64): coverage stated, tested within 5 years - the 25-64 age range allows direct comparison with England

5 Newborn: uptake stated (of babies born, number tested)

4.4 Primary care services

4.4.1 Use of primary care as reported by adults

Betsi Cadwaladr University Health Board adults who reported particular service use, Welsh Health Survey 2008 & 2009.

	Observed per cent	Age-standardised percent	Wales per cent
Health service use			
Family doctor (GP) in the past two weeks	17	17	18
In the past three months:			
Accident, injury or poisoning needing hospital treatment or a visit to casualty	4	4	5
In the past twelve months:			
Pharmacist	67	67	70
Dentist	72	72	70
Optician	47	46	49
Unweighted base (i)			
All aged 16+	*8,047*	*8,047*	*29,331*

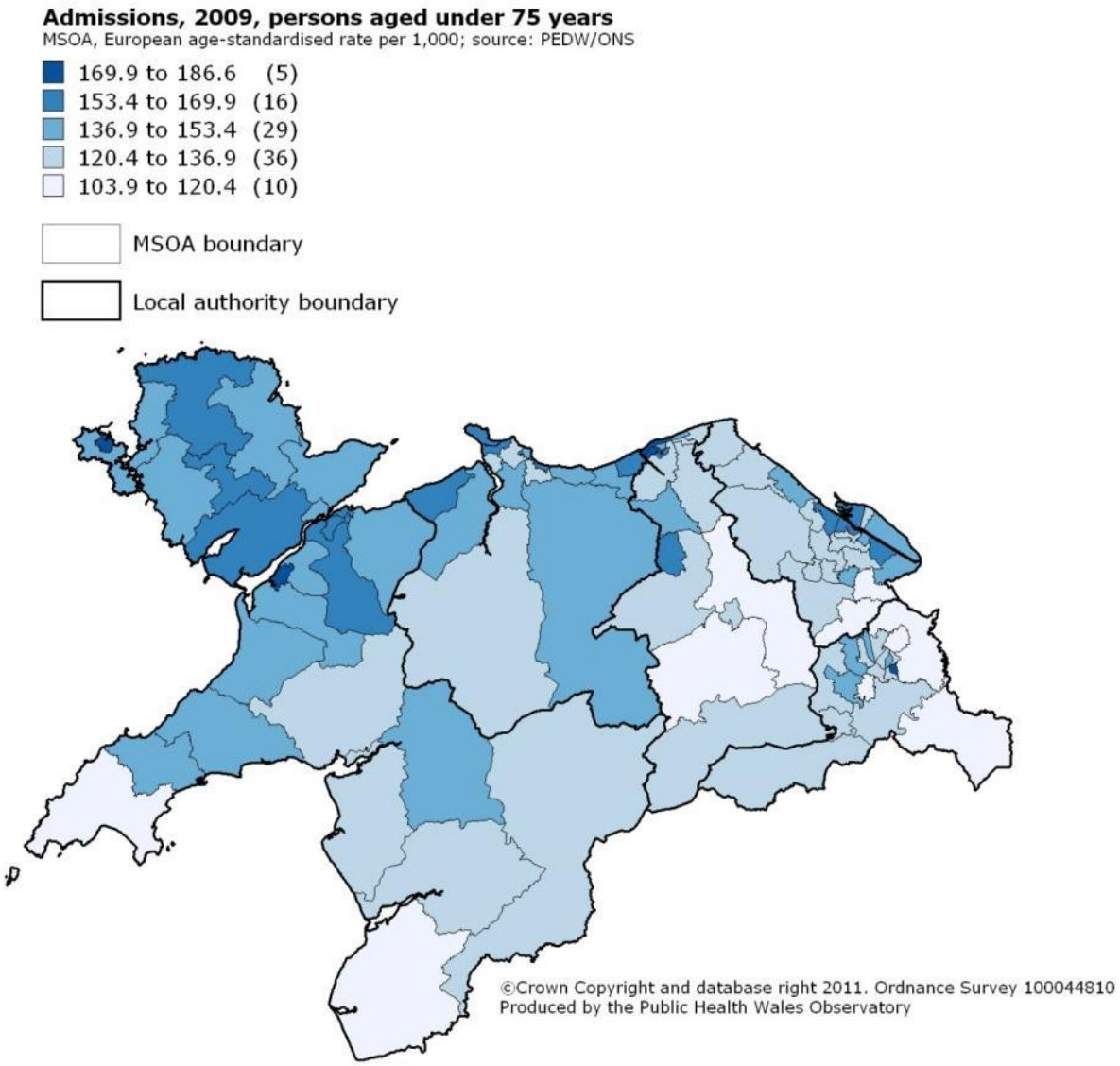
Source: Welsh Health Survey 2008 + 2009

(i) Bases vary: those shown are for the whole sample.
Age standardised rate is standardised to the Wales population.

4.5 Use of secondary and tertiary care

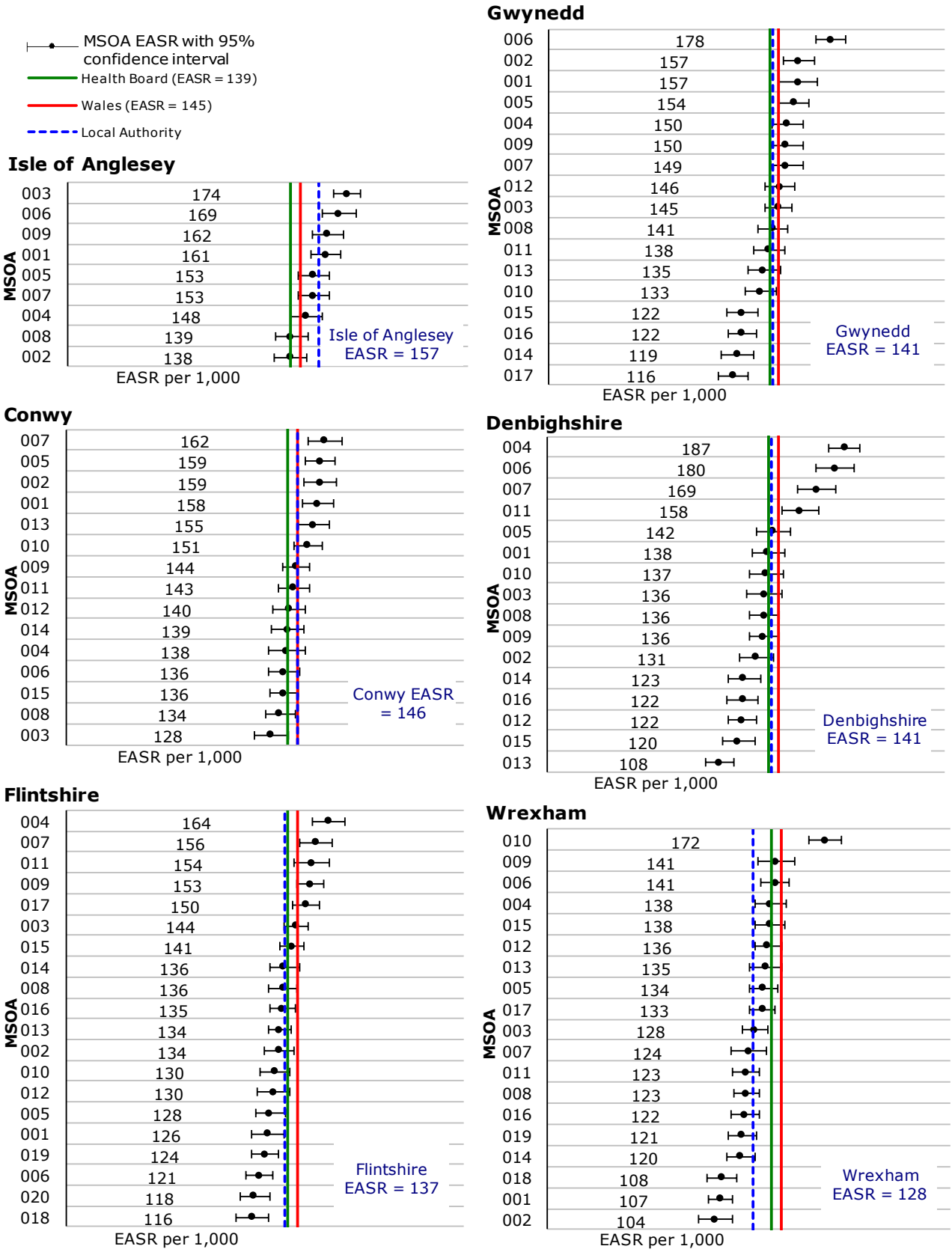
4.5.1 Hospital admissions: individuals aged under 75

Middle super output areas



Hospital admissions in Betsi Cadwaladr University Health Board area, persons aged under 75, 2009, European age-standardised rates per 1,000

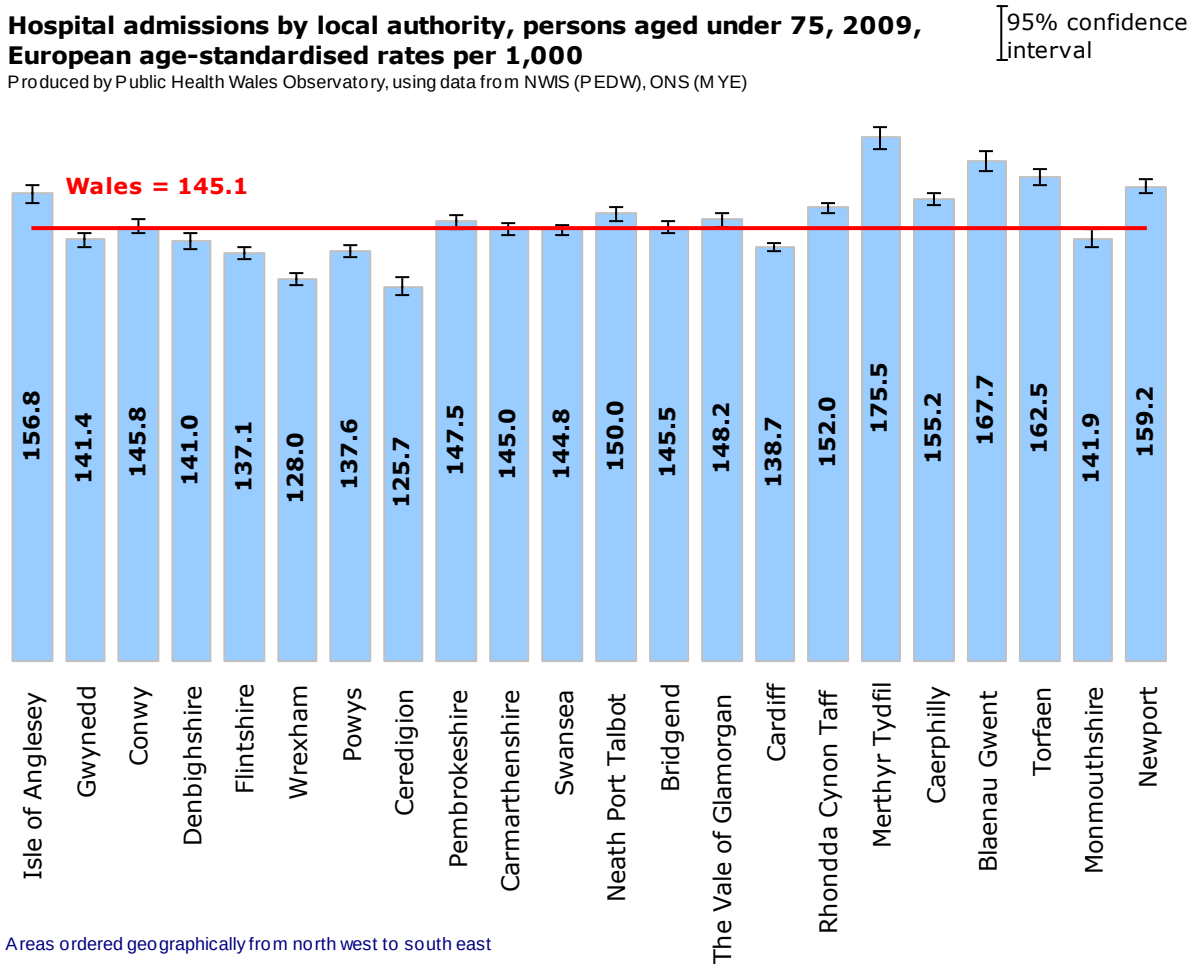
Produced by Public Health Wales Observatory, using data from NWIS (PEDW), ONS (MYE)



Local authorities

Hospital admissions by local authority, persons aged under 75, 2009, European age-standardised rates per 1,000

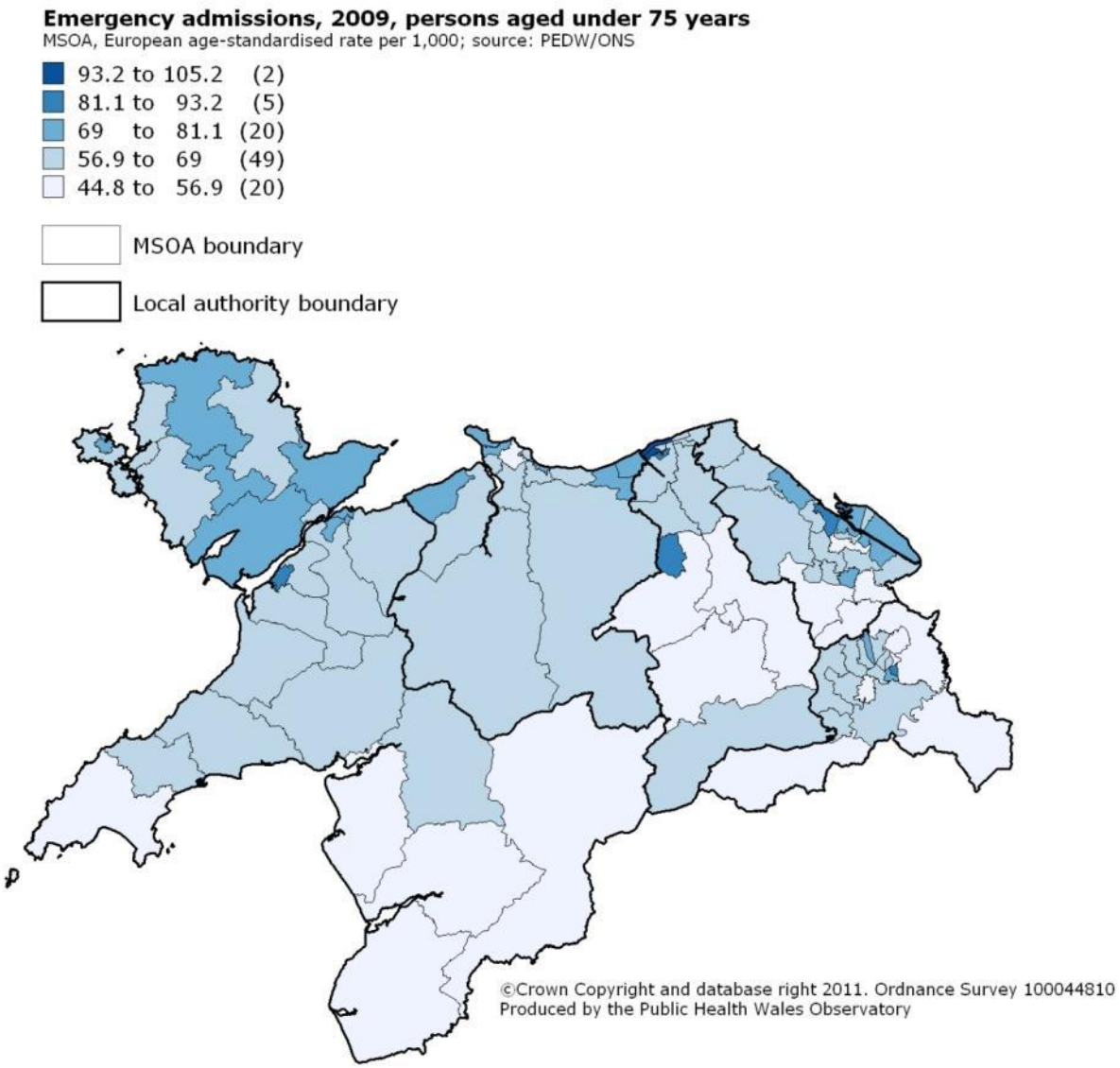
Produced by Public Health Wales Observatory, using data from NWIS (PEDW), ONS (MYE)



Areas ordered geographically from north west to south east

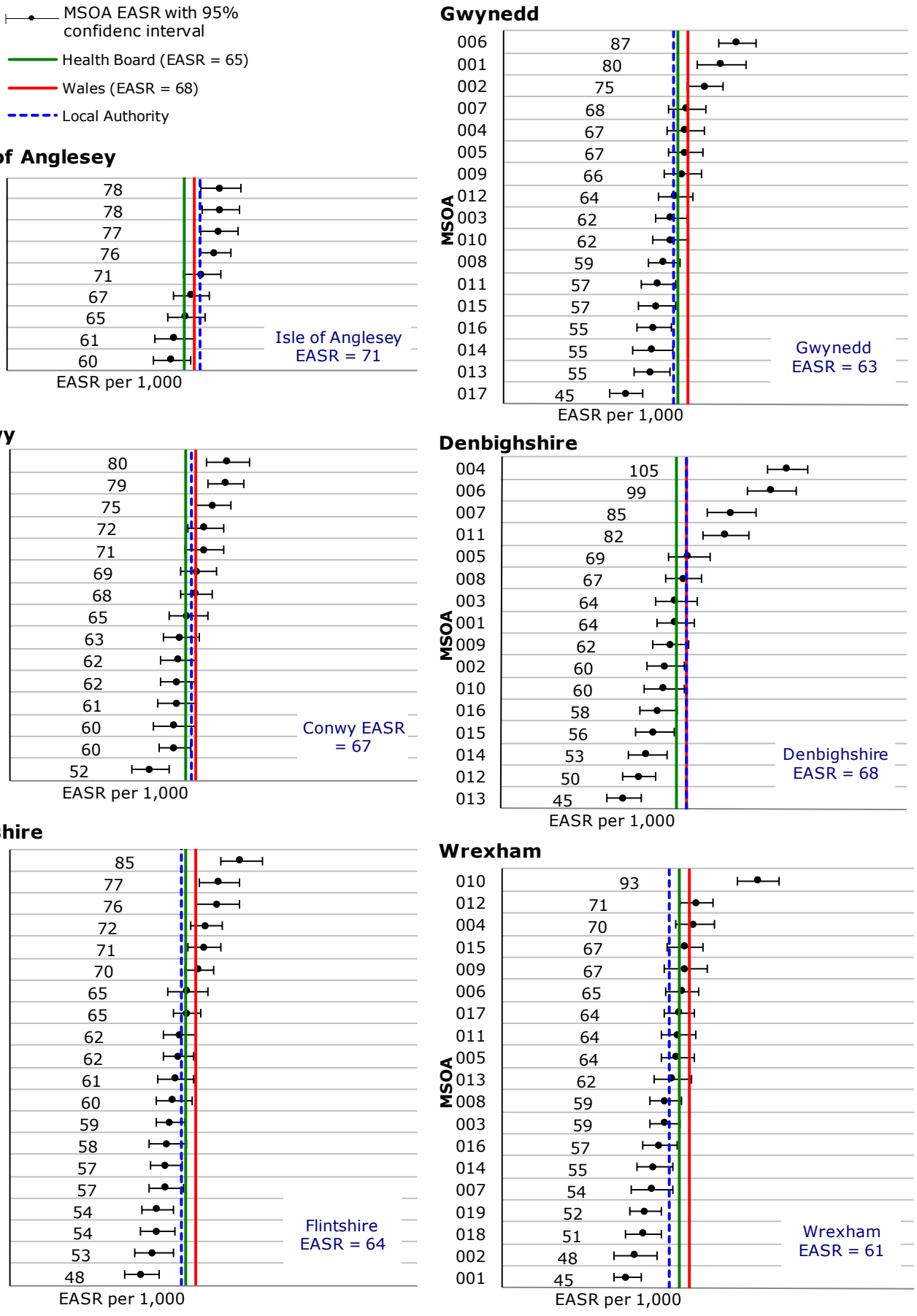
4.5.2 Emergency hospital admissions: individuals aged under 75

Middle super output areas



Emergency hospital admissions in Betsi Cadwaladr University Health Board area, persons aged under 75, 2009, European age-standardised rates per 1,000

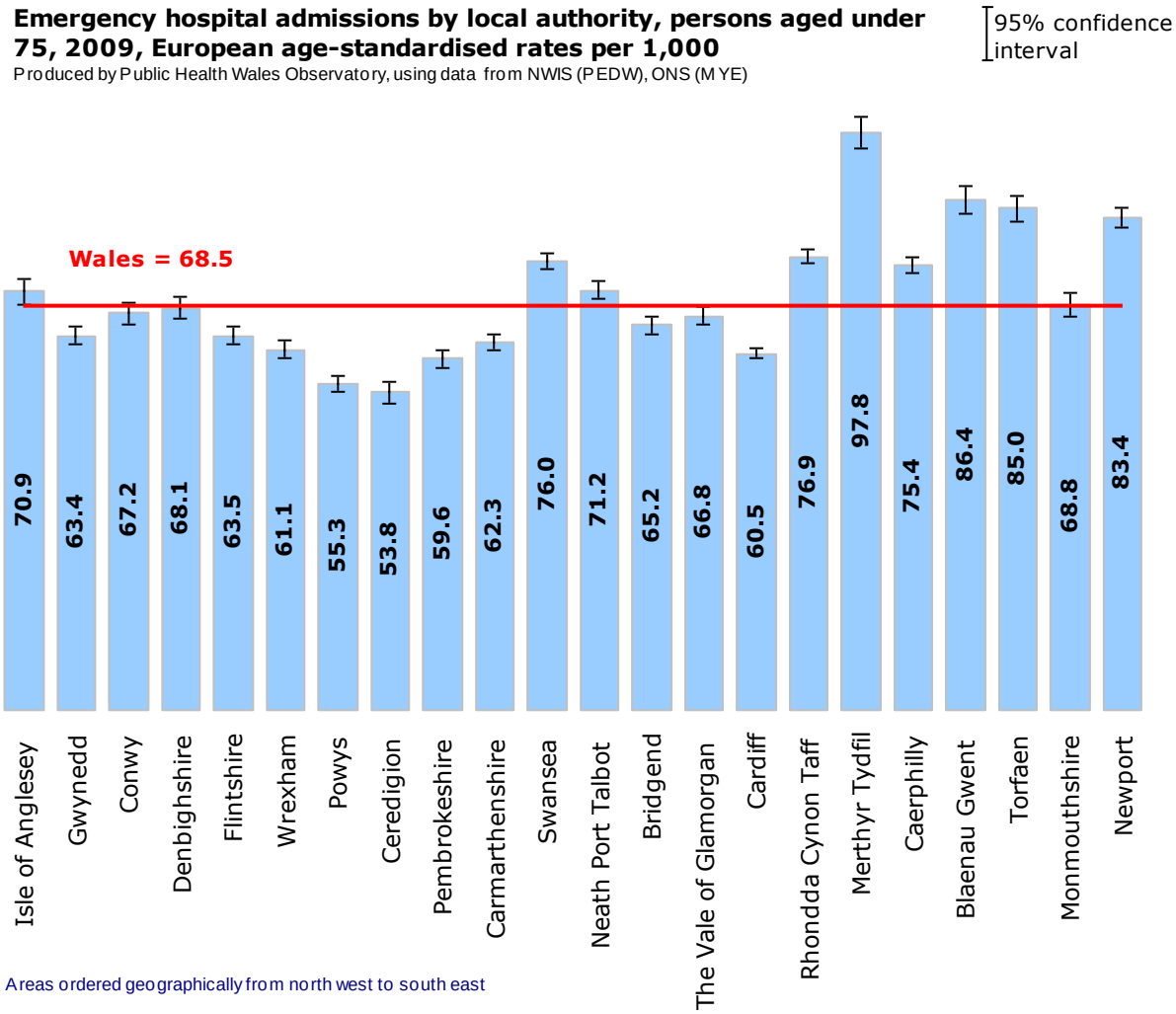
Produced by Public Health Wales Observatory, using data from NWIS (PEDW), ONS (MYE)



Local authorities

Emergency hospital admissions by local authority, persons aged under 75, 2009, European age-standardised rates per 1,000

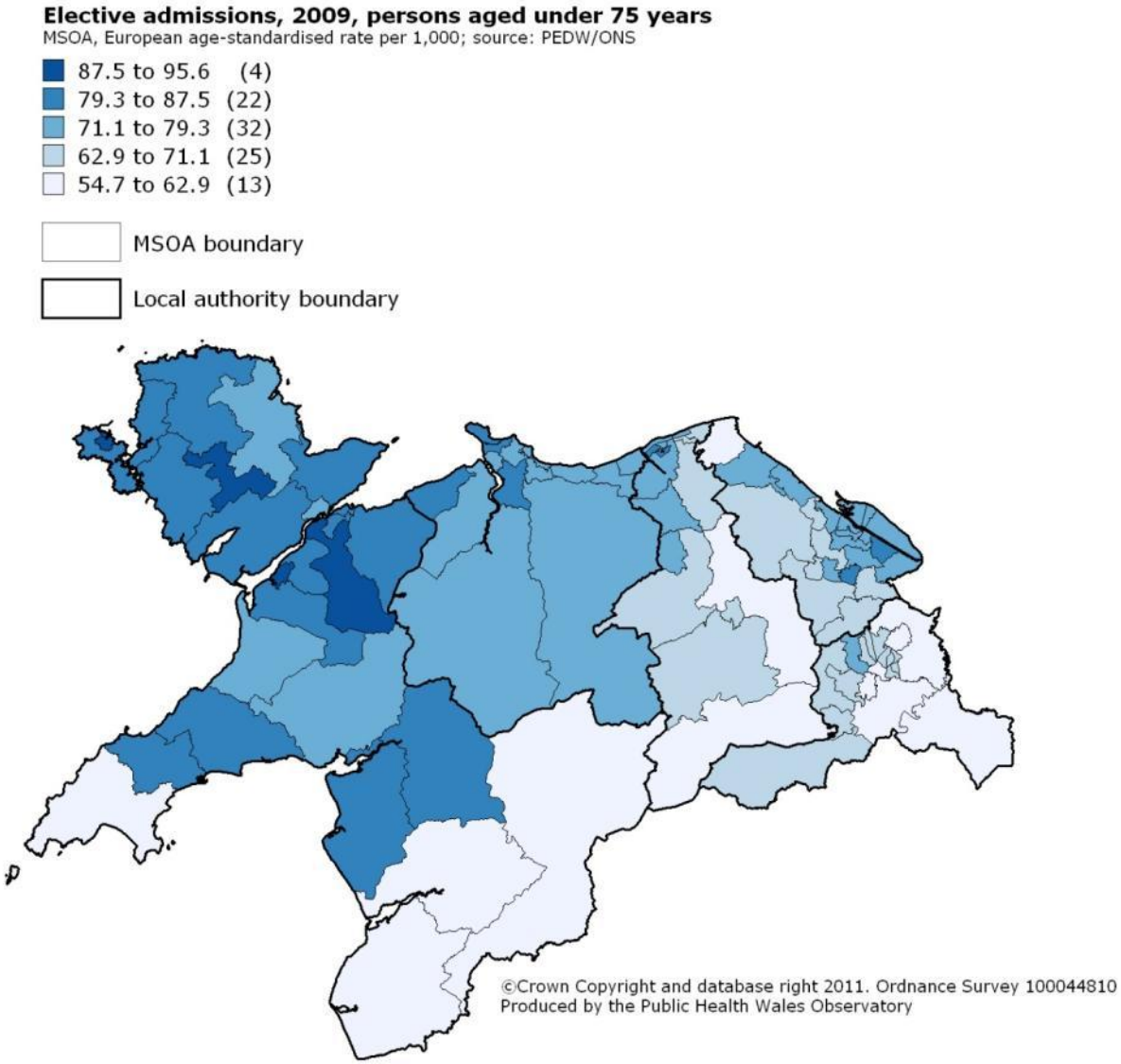
Produced by Public Health Wales Observatory, using data from NWIS (PEDW), ONS (MYE)



Areas ordered geographically from north west to south east

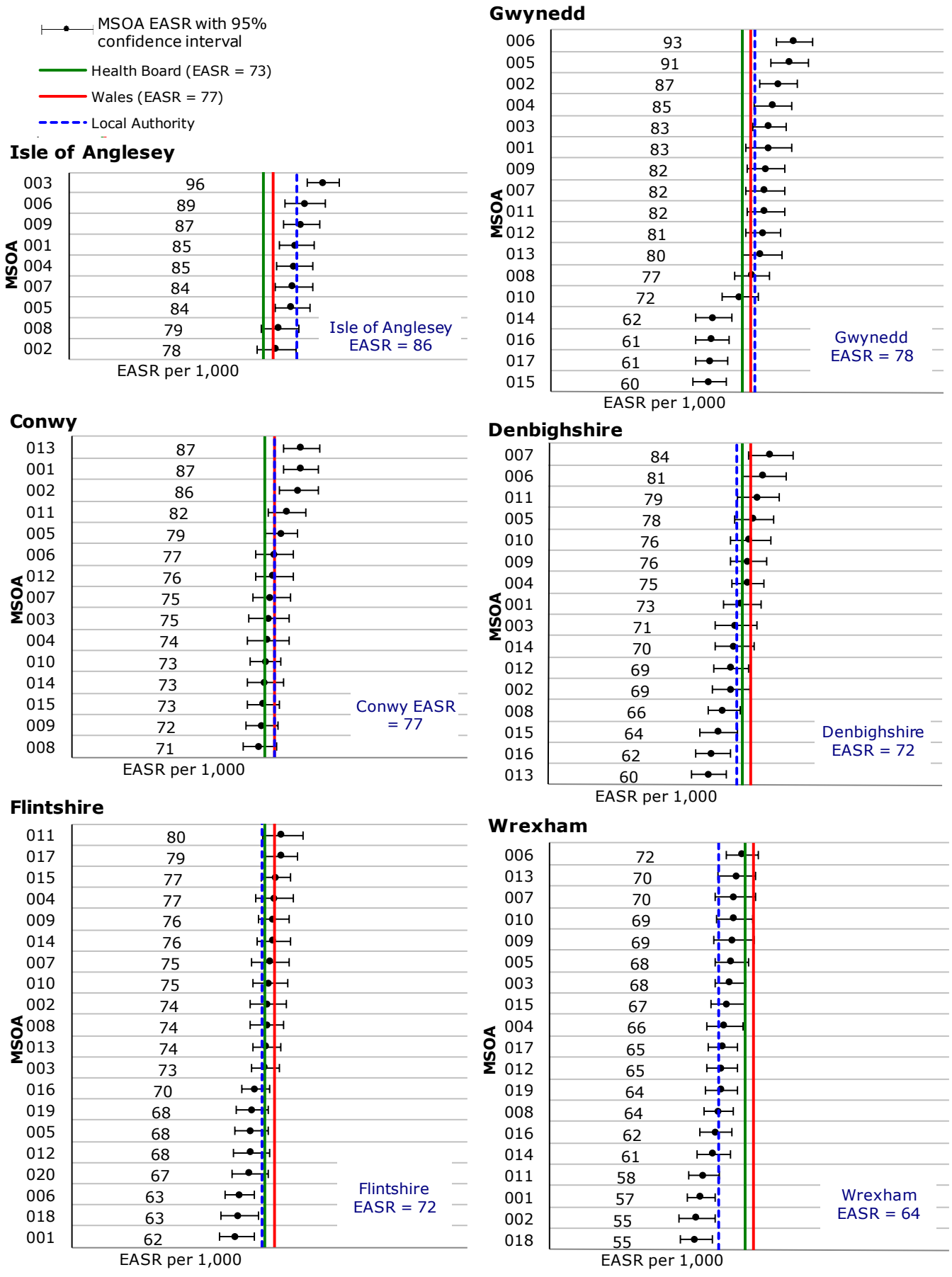
4.5.3 Elective hospital admissions: individuals aged under 75

Middle super output areas



Elective hospital admissions in Betsi Cadwaladr University Health Board area, persons aged under 75, 2009, European age-standardised rates per 1,000

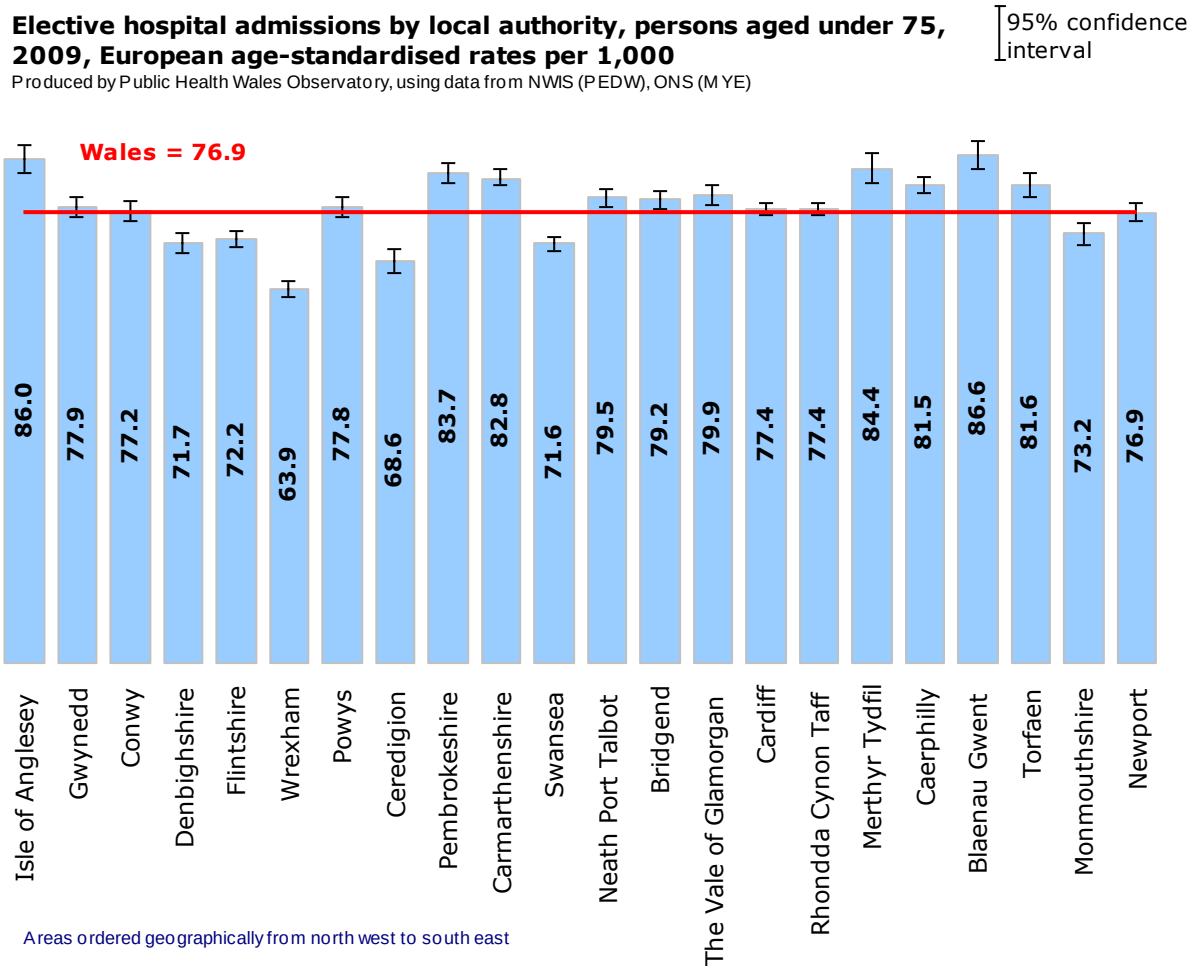
Produced by Public Health Wales Observatory, using data from NWIS (PEDW), ONS (MYE)



Local authorities

Elective hospital admissions by local authority, persons aged under 75, 2009, European age-standardised rates per 1,000

Produced by Public Health Wales Observatory, using data from NWIS (PEDW), ONS (MYE)



5 Health status

5.1 Health status: key points

There are consistent general patterns exhibited across the various indices of health status. Betsi Cadwaladr UHB has generally better levels of health than Wales as a whole. At the local authority level, patterns are not entirely consistent but for a number of the mortality indicators levels are lower towards the west in Gwynedd and Anglesey and higher towards the east in Flintshire and Wrexham.

Low birth weight

Low birth weight is associated with poor maternal health and lifestyle and there is increasing evidence to show an association with adverse effects later in life. The percentage of singleton live born babies weighing under 2500g in Betsi Cadwaladr UHB is slightly lower than the Wales average. At local authority level the rate varies from five per cent in Gwynedd to six per cent in Conwy and Denbighshire. At the MSOA level, the areas with the highest percentages are found in the Connah's Quay in Flintshire; the south west areas of Rhyl in Denbighshire, and in the Wynnstay, Queensway, Cartrefle areas of Wrexham. The lowest rates are found in southern areas of Gwynedd; the Overton and Bronington area of Wrexham and the Penhryn area of Conwy.

Self-reported health status

The Welsh Health Survey contains a number of questions on health status, including the SF36 questionnaire which can be summarised into overall physical and mental health scores. The latest results show that self reported physical and mental health scores are better in Betsi Cadwaladr UHB than in Wales as a whole. At the local authority level, across all areas, self reported health status is either better than or similar to the Wales average.

Mortality from specific conditions

Circulatory disease includes heart disease and stroke and is the most common underlying cause of death in Wales. Lifestyle factors such as diet, exercise, alcohol consumption and especially smoking are known to be implicated in circulatory disease. The European age-standardised mortality rate for Betsi Cadwaladr UHB is similar to Wales. At the local authority level the rate is lowest in Anglesey and highest in Wrexham. At MSOA level there is substantial variation. Rates are particularly high in the Gwersyllt West area of Wrexham and in the coastal strip within Rhyl. The lowest rates are mainly in rural areas of the health board in places like Menai Bridge, Llaneilian, Llanddyfnan and Moelfre on Anglesey; the areas of Buckley, Northop, Soughton, Higher Kinnerton and Penyffordd in Flintshire, and the Penycae, Ruabon and Marchwiel areas of Wrexham local authority. Focusing on circulatory mortality in under 75 year olds, the pattern is similar with the Gwersyllt West area in Wrexham and the coastal strip within Rhyl again exhibiting particularly high rates.

Coronary heart disease is a sub-category within circulatory disease and includes heart attacks. Smoking is a major cause of coronary heart disease. The European age-standardised mortality rate for Betsi Cadwaladr UHB is similar to the Wales rate and at local authority level the rate is lowest in Anglesey and highest in Wrexham. At MSOA level, once again, variation is high. The Gwersyllt West area of Wrexham has a particularly high rate (more than twice the Wales average). Other areas with high rates are in Cefn Mawr and Froncysyllte in Wrexham local authority area; the coastal strip of Rhyl and in the town of Flint.

Cancer is the second most common cause of death in Wales. Causes of cancer are multifactorial, varying depending on the site but smoking and other lifestyle factors are important risk factors. The European age-standardised mortality rate for Betsi Cadwaladr UHB is similar to Wales and there is very little variation across local authorities in the health board area. At MSOA level there is significant variation. The highest rates are found in parts of Connah's Quay, and the Holywell, Bagillt and Greenfield areas of Flintshire; the Wynnstay, Queensway, Cartrefle, Hermitage, Smithfield and Whitegate areas of Wrexham and the south western area of Rhyl in Denbighshire. The areas with the lowest rates are towards the east of the health board area in places like Northrop, Ewloe, Penyffordd and the area south of Mold in Flintshire; Dyserth, Meliden and Tremeirchion in Denbighshire; and Gresford, Bronington and Overton in Wrexham.

Respiratory disease is a very common cause of death. Once again, smoking is a major contributor to death from respiratory disease. The European age-standardised mortality rate for Betsi Cadwaladr UHB is similar to Wales. There is some variation at local authority level with rates ranging from 63 per 100,000 in Conwy to 93 in Wrexham. At the MSOA level there is considerable variation with the rate more than trebling between lowest and highest. The wider confidence intervals on the caterpillar charts are indicative of the fact that there are fewer respiratory disease deaths than for cancer or circulatory disease. The highest rates are found in the Gwersyllt West, Wynnstay, Queensway and Cartrefle areas of Wrexham. Rates are also high in the Hermitage, Smithfield and Whitegate areas of Wrexham and the coastal strip in Rhyl.

Cancer survival

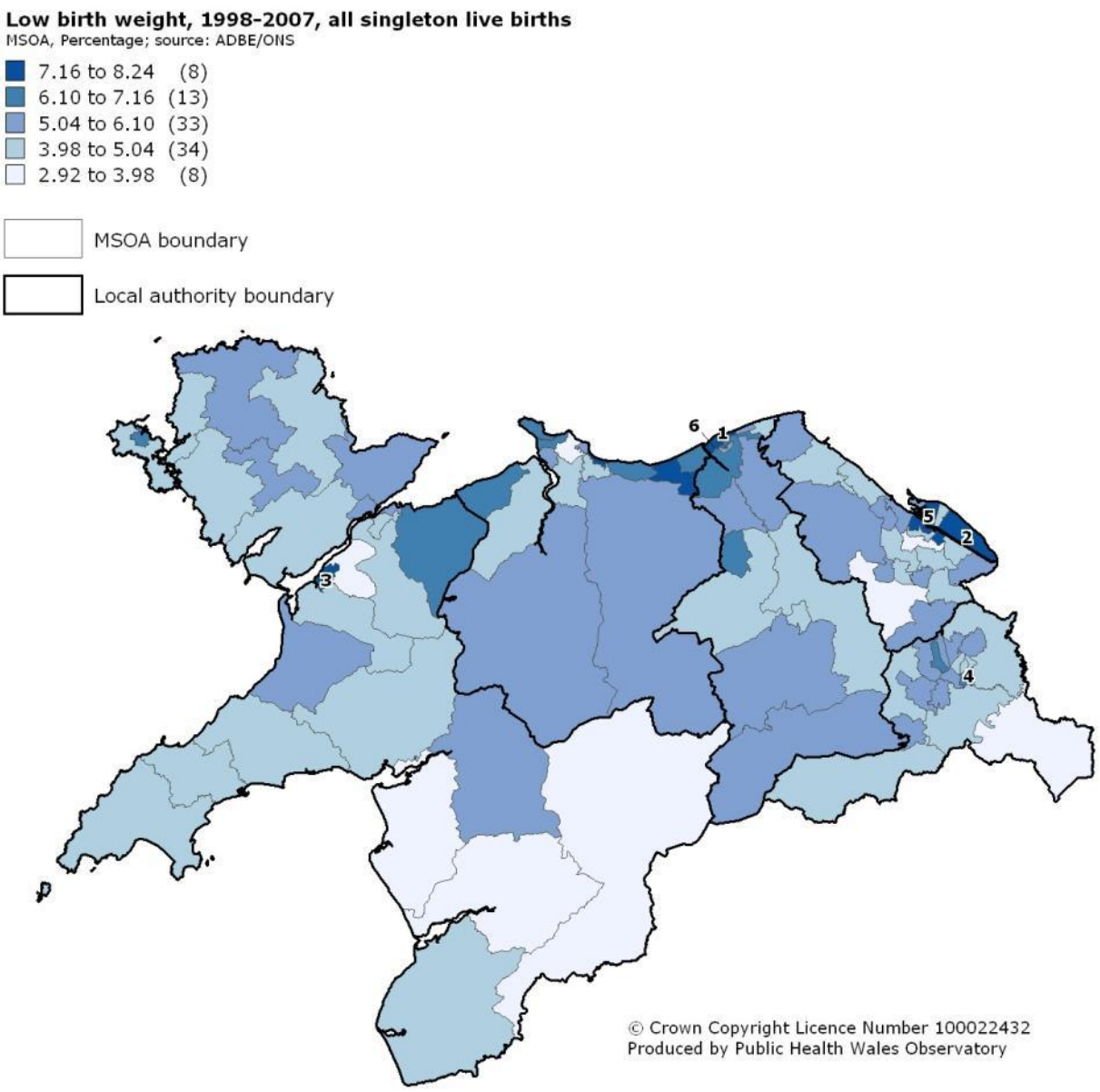
Relative survival is the most widely used method in population studies. It is the ratio of the survival observed in the group of cancer patients to the survival that would be expected if they were subject to the same overall mortality rates by age, sex and calendar period as the general population. The expected probabilities are obtained from life tables for Wales that provide the life expectancy of persons for a given year by age and sex. The problems arising with crude survival are therefore overcome. It enables one to measure variations in cancer survival (or its complement, mortality) independently of variations in expected (background) mortality associated with various factors (age and sex in these analyses).The regional data for Wales indicate a steady improvement in one year relative survival for both males and females.

The site-specific one and five year relative survival figures indicate that there are no statistically significant differences between Betsi Cadwaladr UHB and Wales as a whole.

5.2 Physical and mental health

5.2.1 Low birth weight

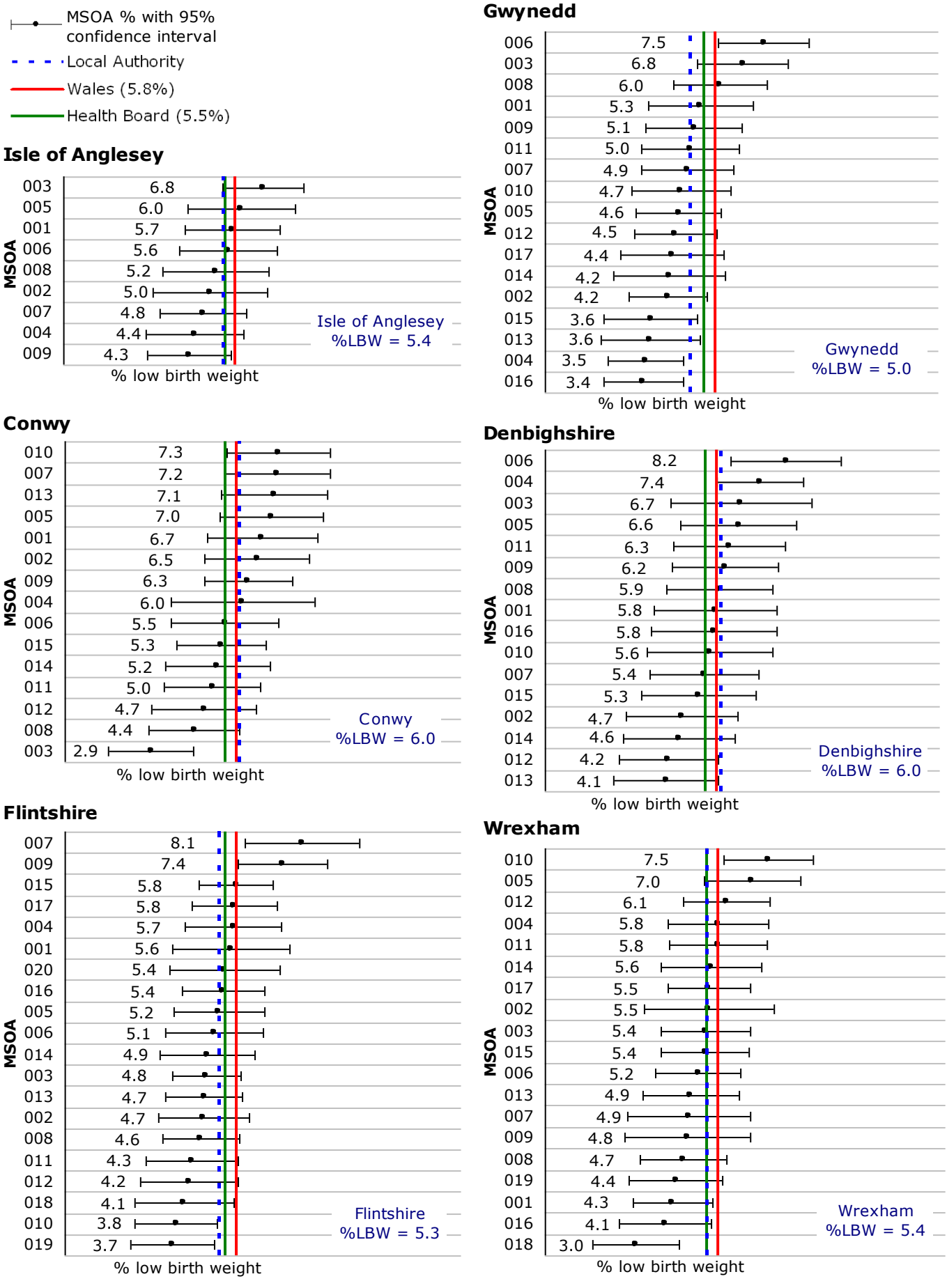
Middle super output areas



Numbers on map indicate MSOAs with a rate statistically significantly higher than the all Wales rate.

Low birth weight in Betsi Cadwaladr University Health Board area, percentage of singleton live births, 1998-2007

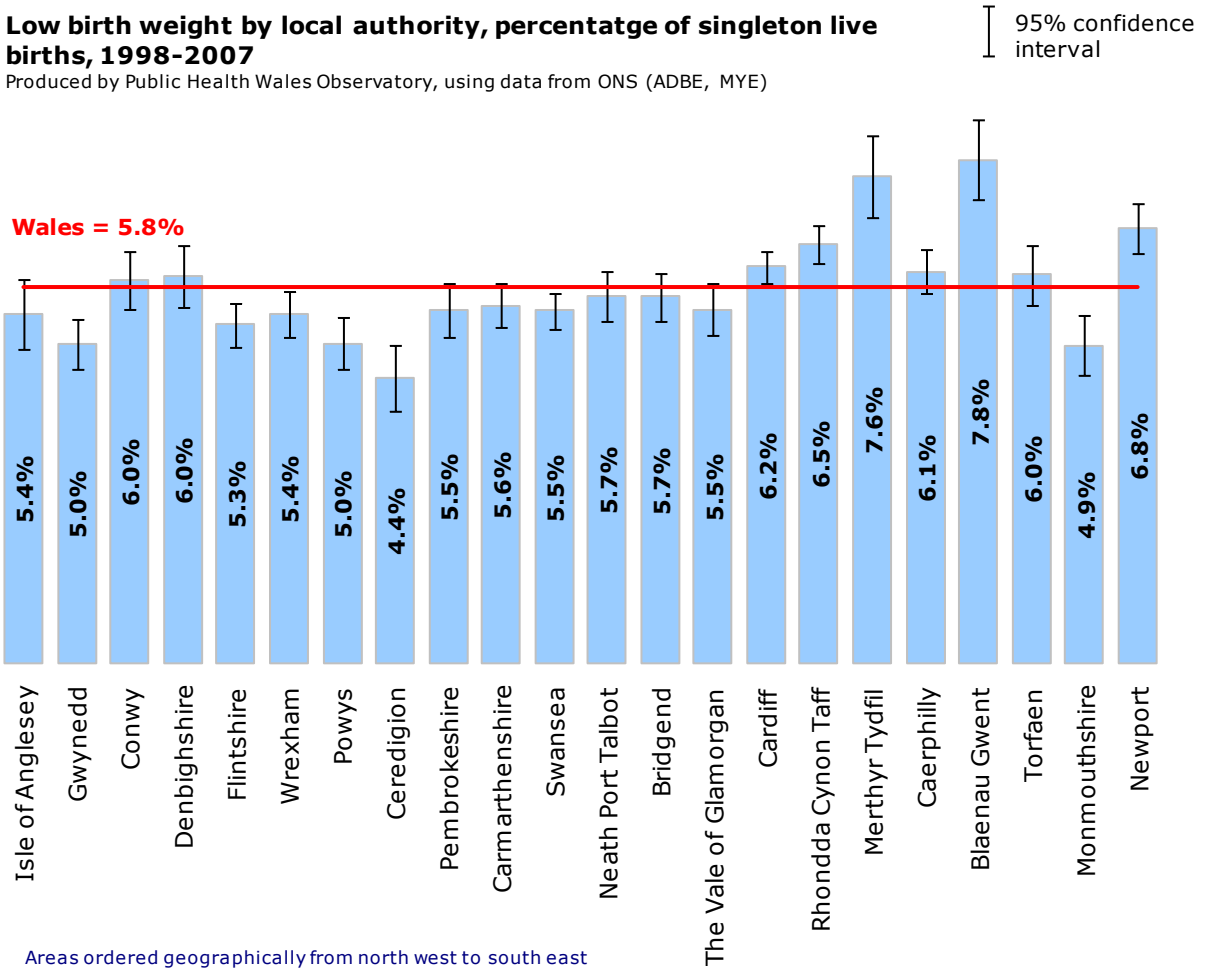
Produced by Public Health Wales Observatory, using data from ONS (ADBE, MYE)



Local authorities

Low birth weight by local authority, percentatge of singleton live births, 1998-2007

Produced by Public Health Wales Observatory, using data from ONS (ADBE, MYE)

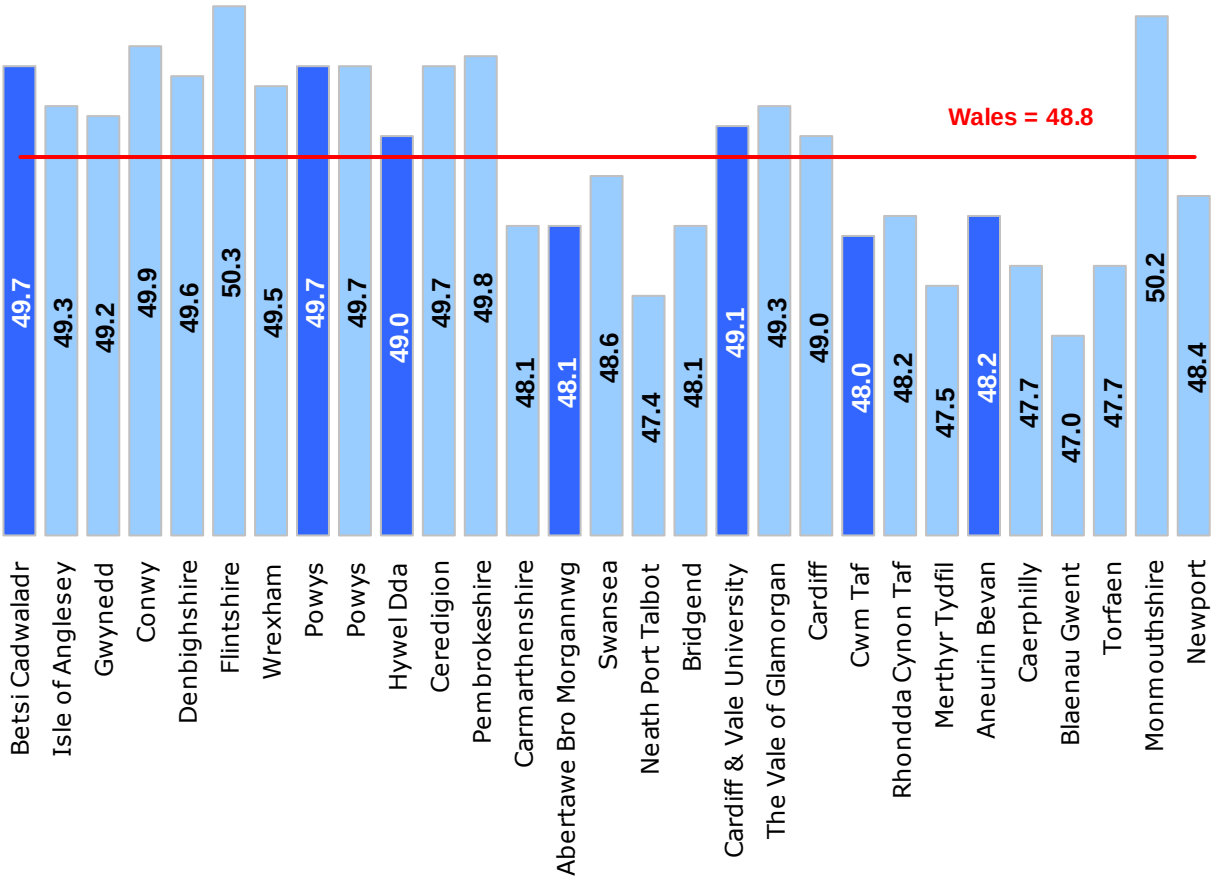


Areas ordered geographically from north west to south east

5.2.2 Physical health as reported by adults*

Mean SF-36 Physical component summary score by local authority and health board, age standardised rate, 2008-2009

Produced by Public Health Wales Observatory using data from the Welsh Health Survey, 2008 and 2009



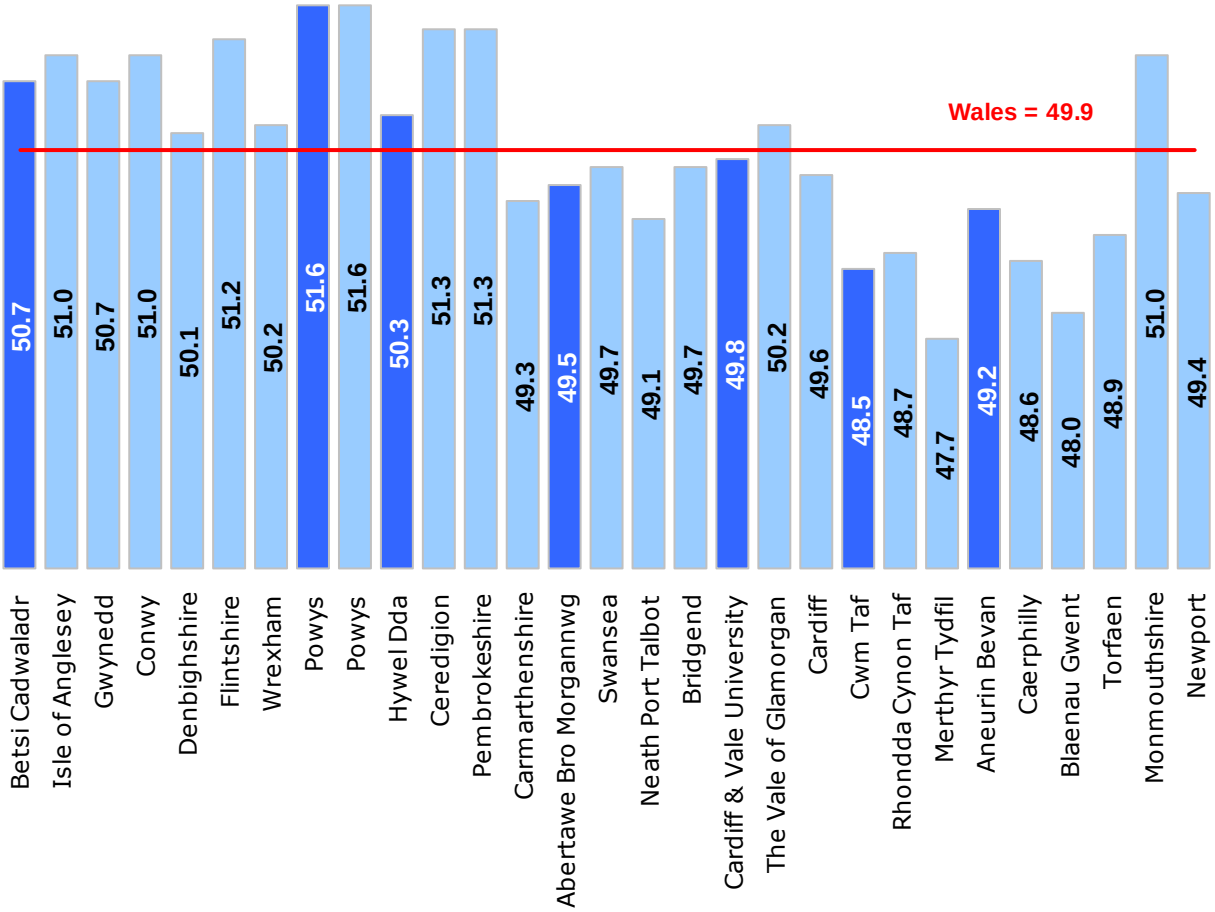
Areas ordered geographically from north west to south east

* Y-axis is truncated to 45

5.2.3 Mental health as reported by adults*

Mean SF-36 Mental component summary score by local authority and health board, age standardised rate, 2008-2009

Produced by Public Health Wales Observatory using data from the Welsh Health Survey, 2008 and 2009



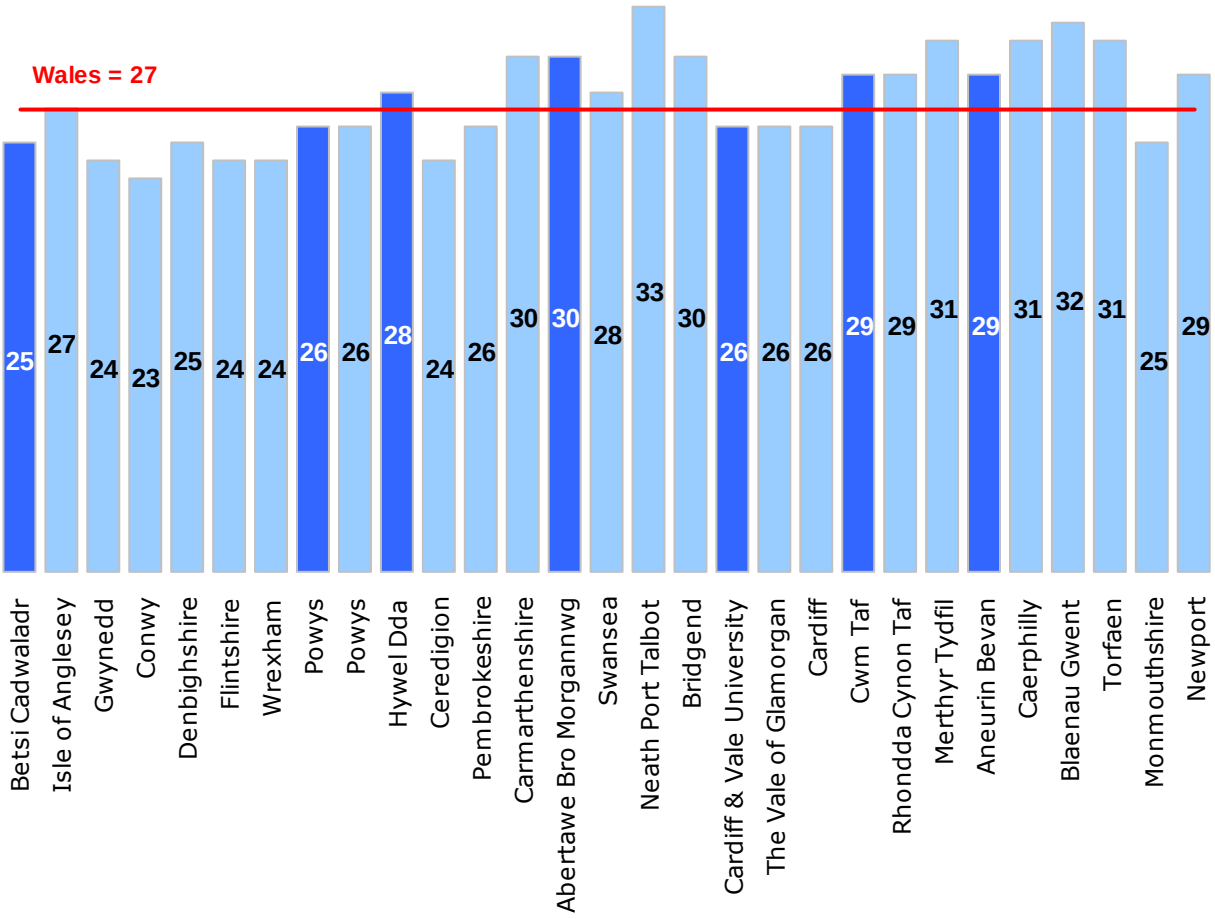
Areas ordered geographically from north west to south east

* Y-axis is truncated to 45

5.2.4 Limiting long term illness as reported by adults

Adults who reported having a limiting long-term illness by local authority and health board, age standardised percentage, 2008-2009

Produced by Public Health Wales Observatory using data from the Welsh Health Survey, 2008 and 2009

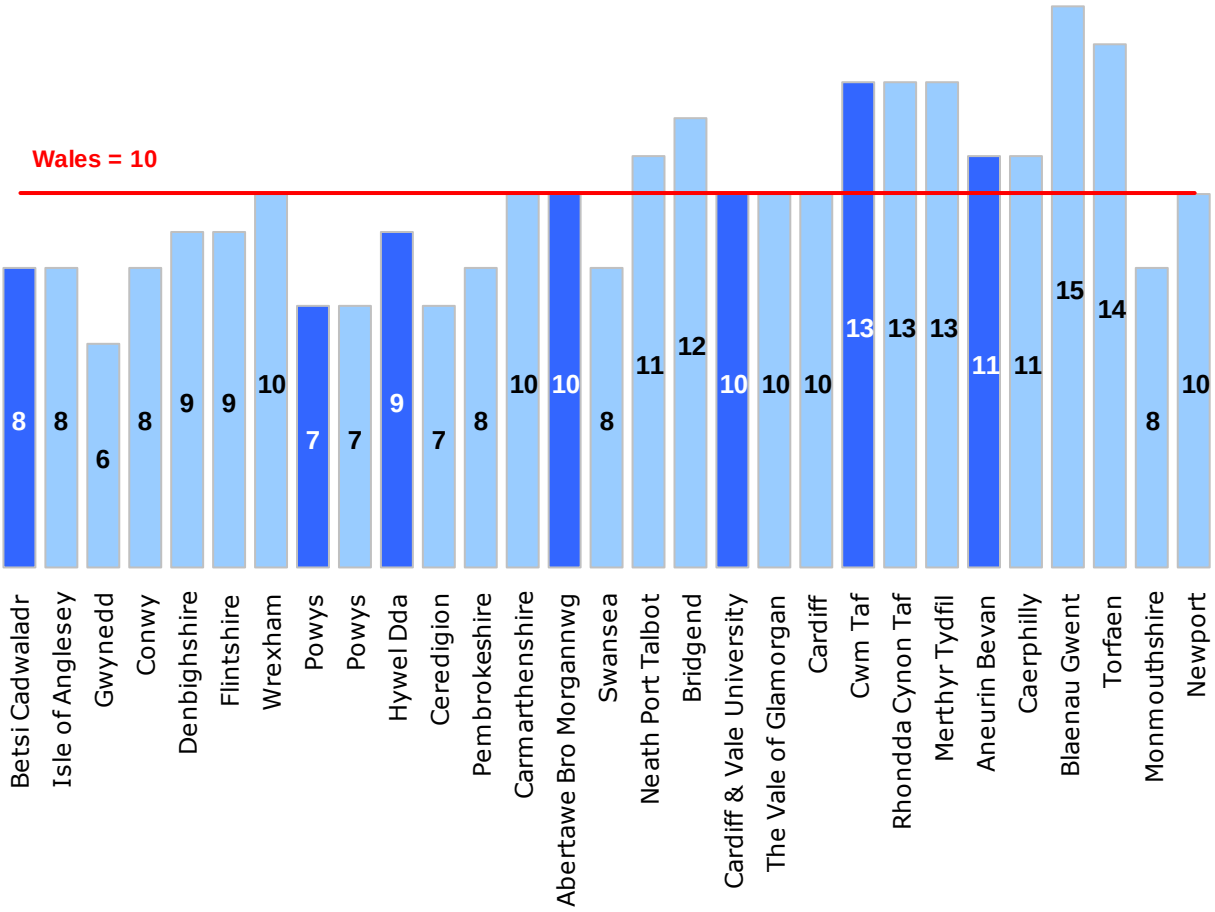


Areas ordered geographically from north west to south east

5.2.5 Mental illness as reported by adult

Adults who reported currently being treated for a mental illness by local authority and health board, age standardised percentage, 2008-2009

Produced by Public Health Wales Observatory using data from the Welsh Health Survey, 2008 and 2009

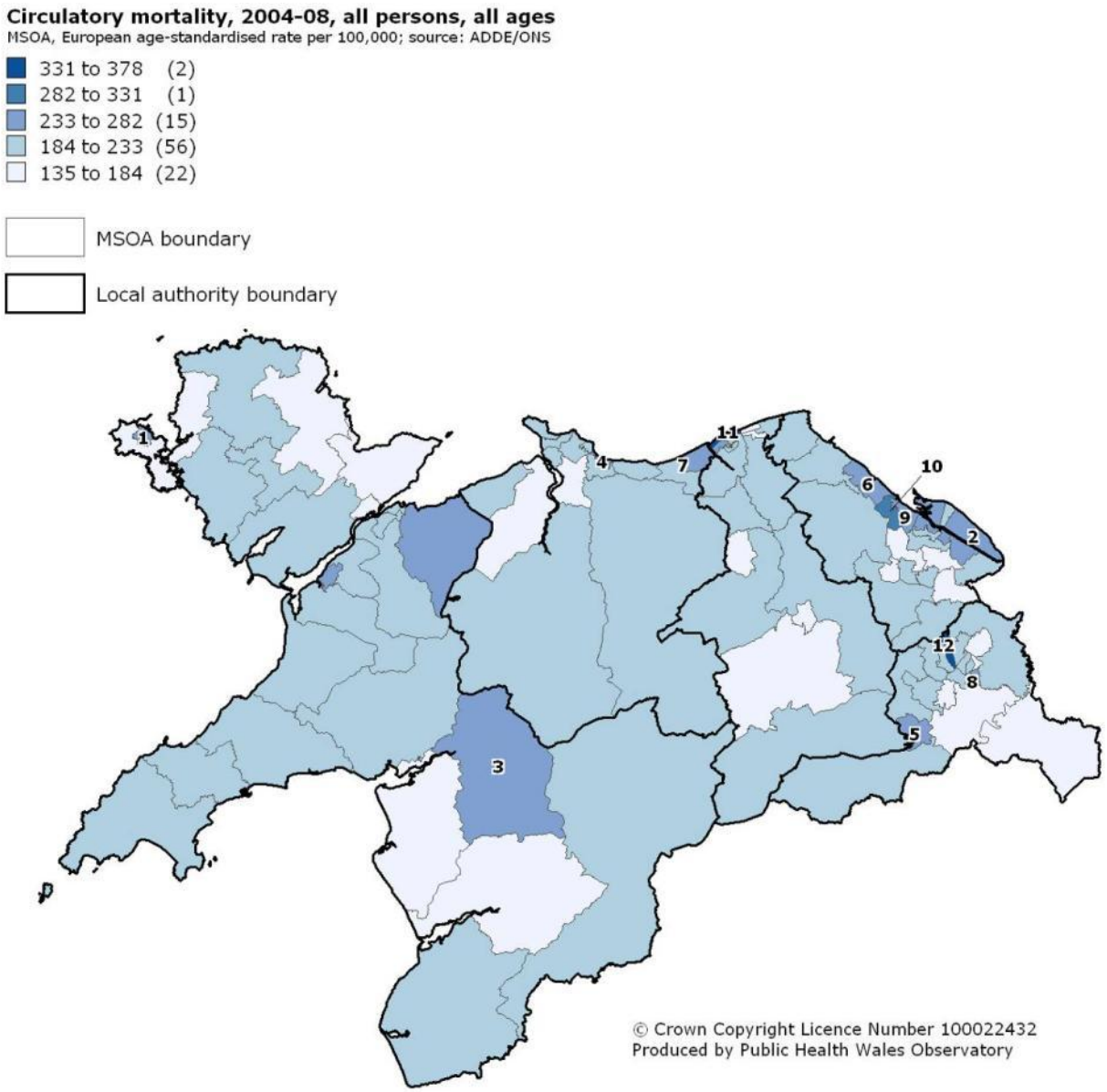


Areas ordered geographically from north west to south east

5.3 Mortality from specific conditions

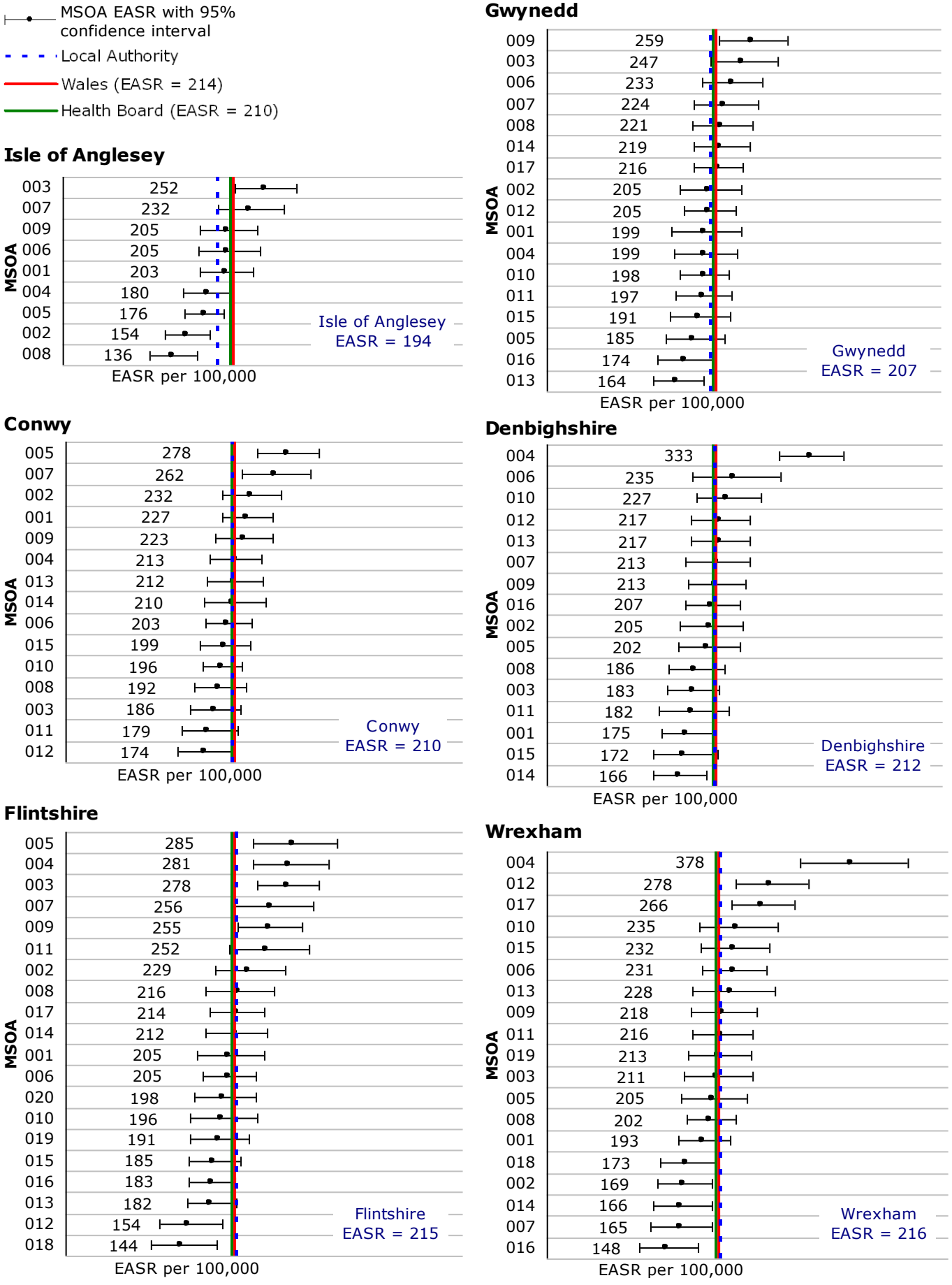
5.3.1 Mortality from circulatory disease, all ages

Middle super output areas



Numbers on map indicate MSOAs with a rate statistically significantly higher than the all Wales rate.

Mortality from circulatory disease in Betsi Cadwaladr University Health Board area, all persons, 2004-08, European age-standardised rates per 100,000
Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)

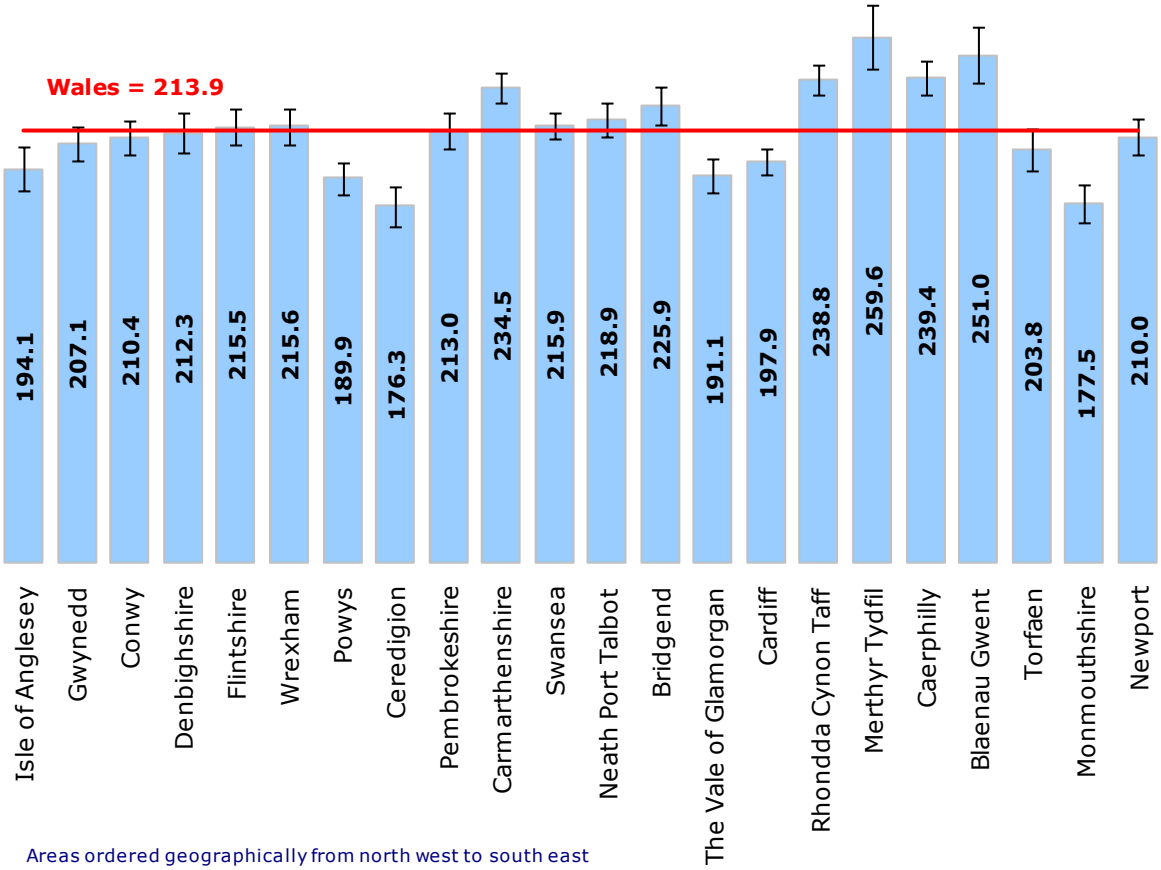


Local authorities

Mortality from circulatory disease by local authority, all persons, 2004-08, European age-standardised rates per 100,000

95% confidence interval

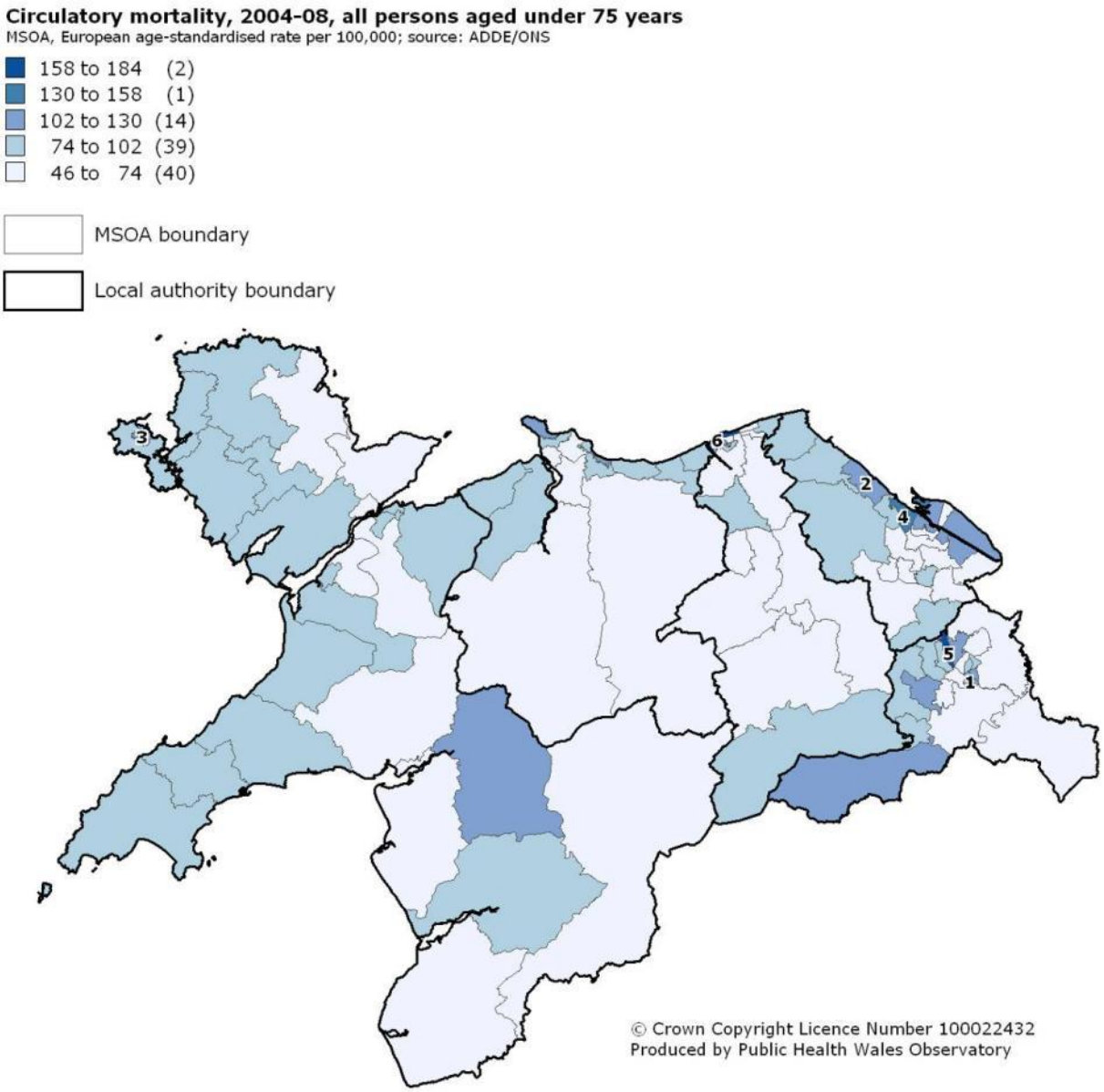
Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)



Areas ordered geographically from north west to south east

5.3.2 Mortality from circulatory disease, under 75s

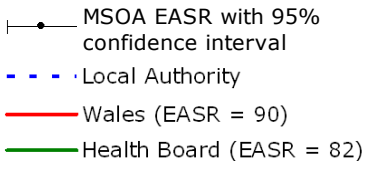
Middle super output areas



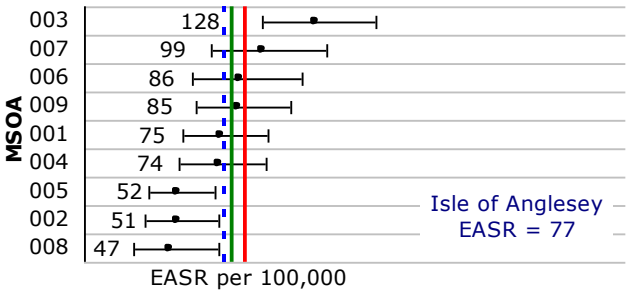
Numbers on map indicate MSOAs with a rate statistically significantly higher than the all Wales rate.

Mortality from circulatory disease in Betsi Cadwaladr University Health Board area, all persons aged under 75, 2004-08, European age-standardised rates per 100,000

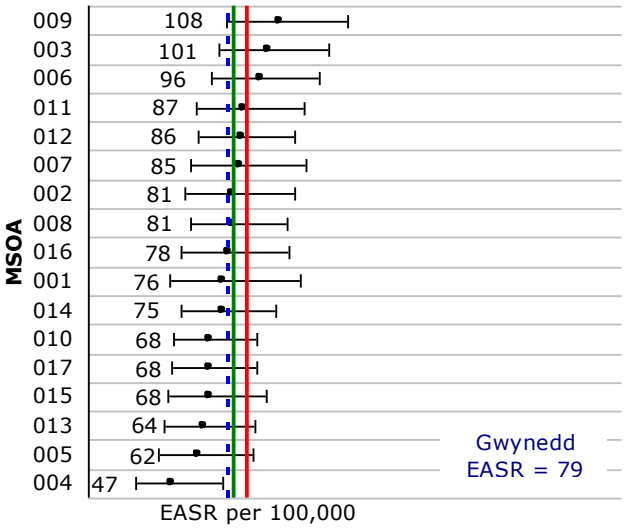
Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)



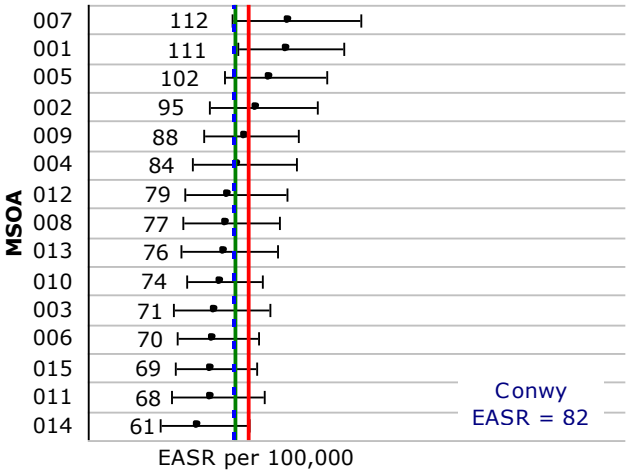
Isle of Anglesey



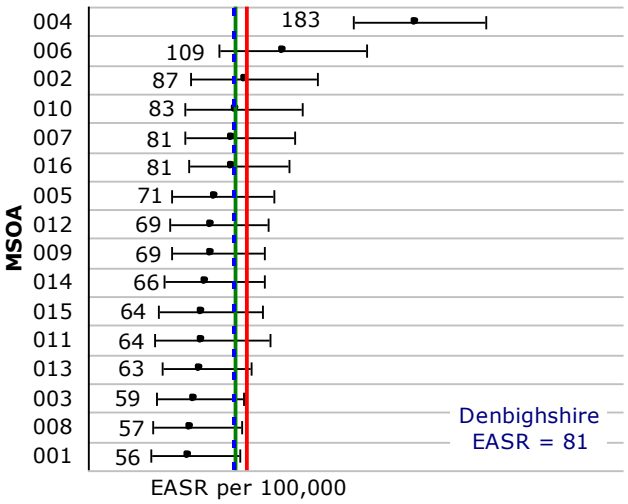
Gwynedd



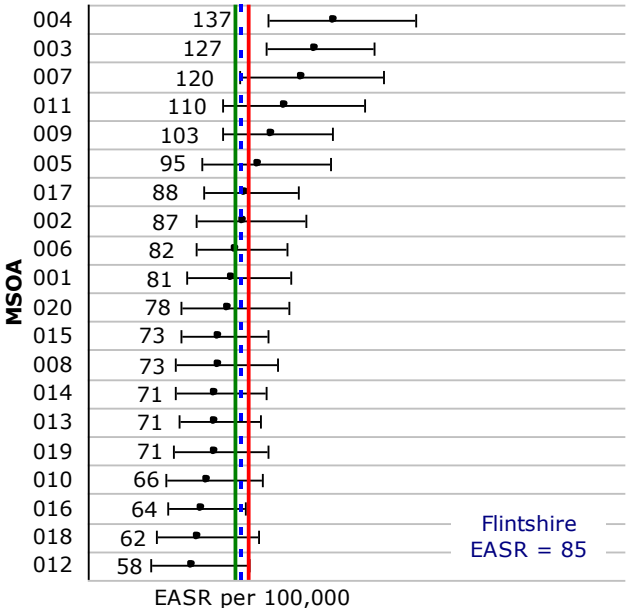
Conwy



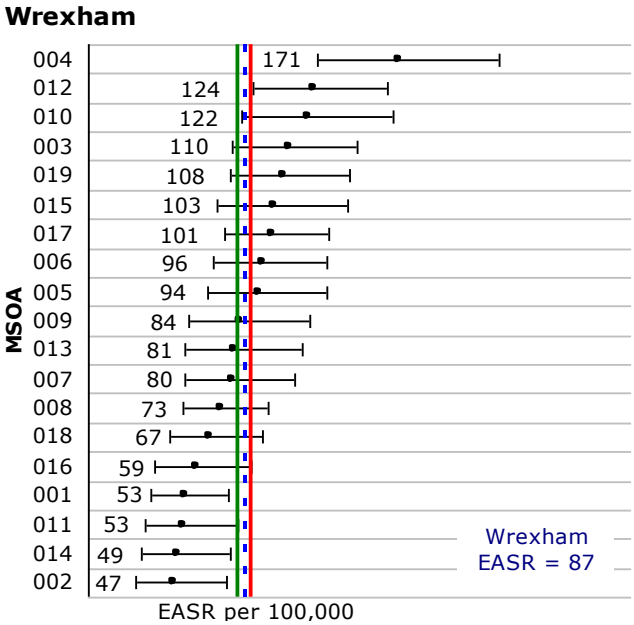
Denbighshire



Flintshire



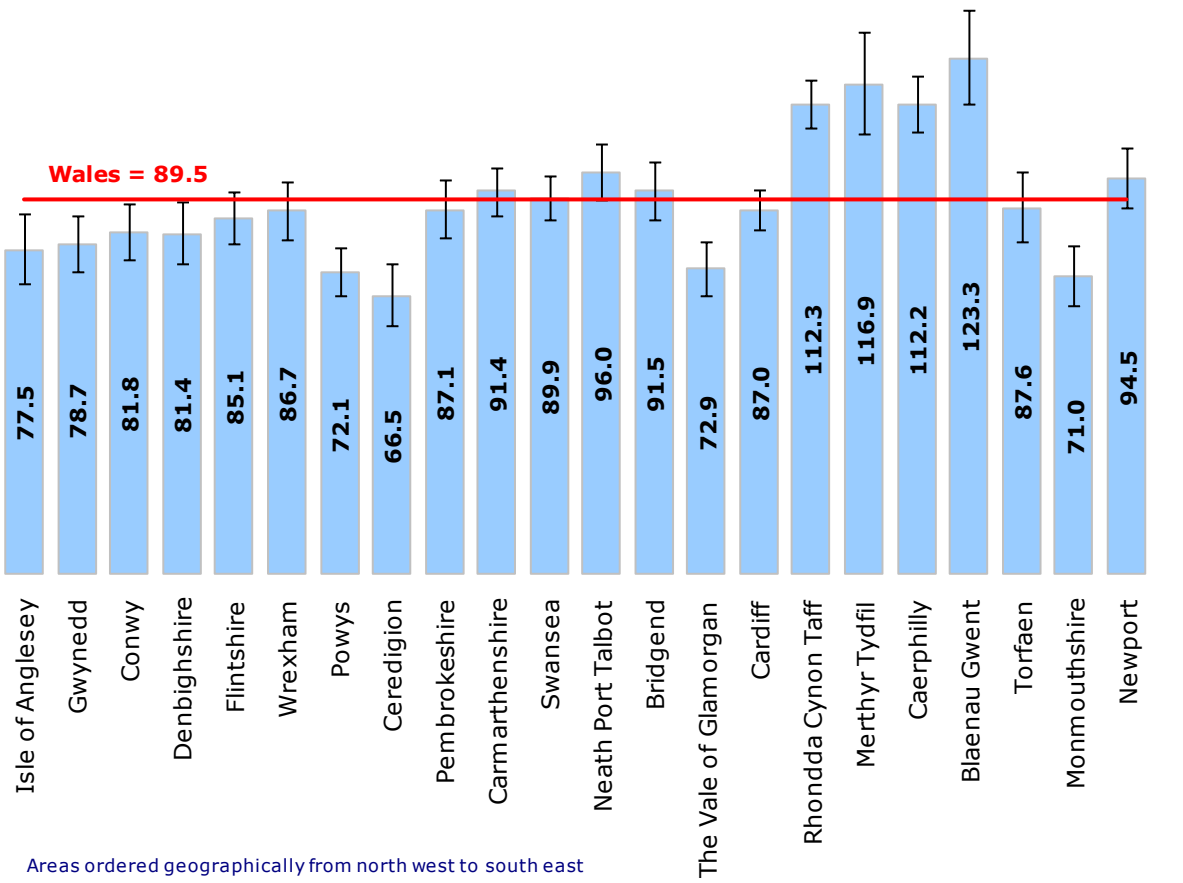
Wrexham



Local authorities

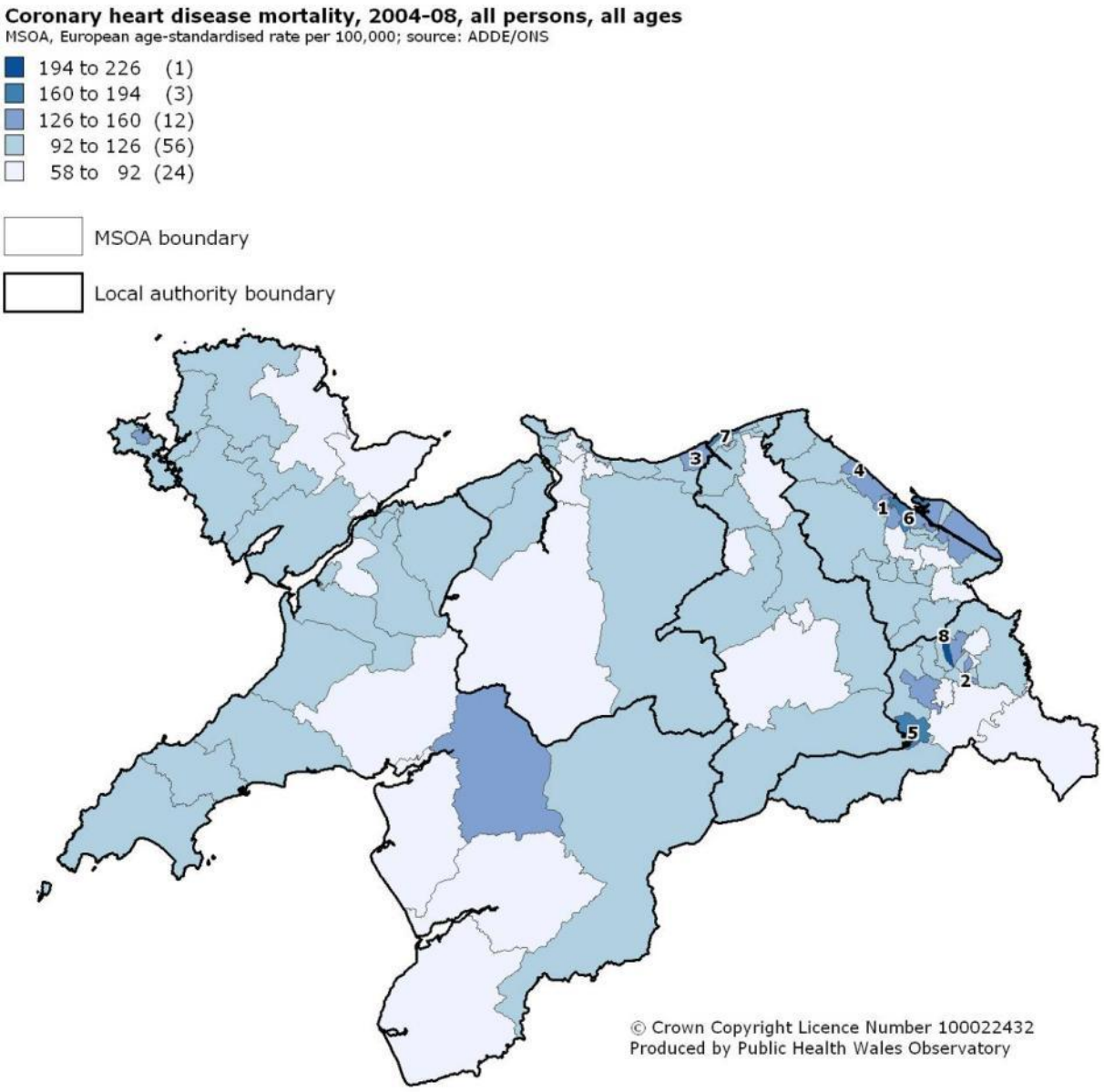
Mortality from circulatory disease by local authority, all persons aged under 75, 2004-08, European age-standardised rates per 100,000

Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)



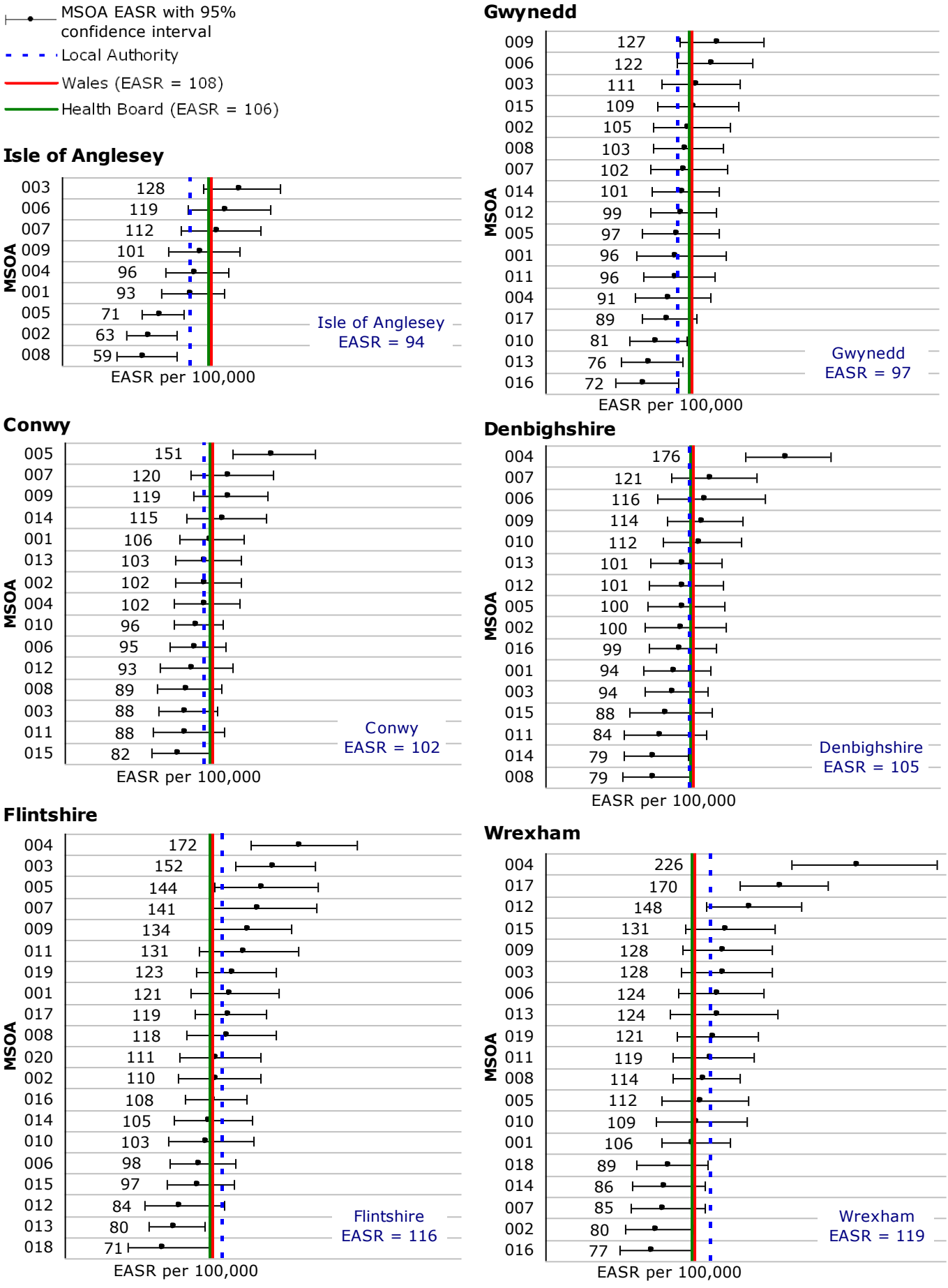
5.3.3 Mortality from coronary heart disease

Middle super output areas



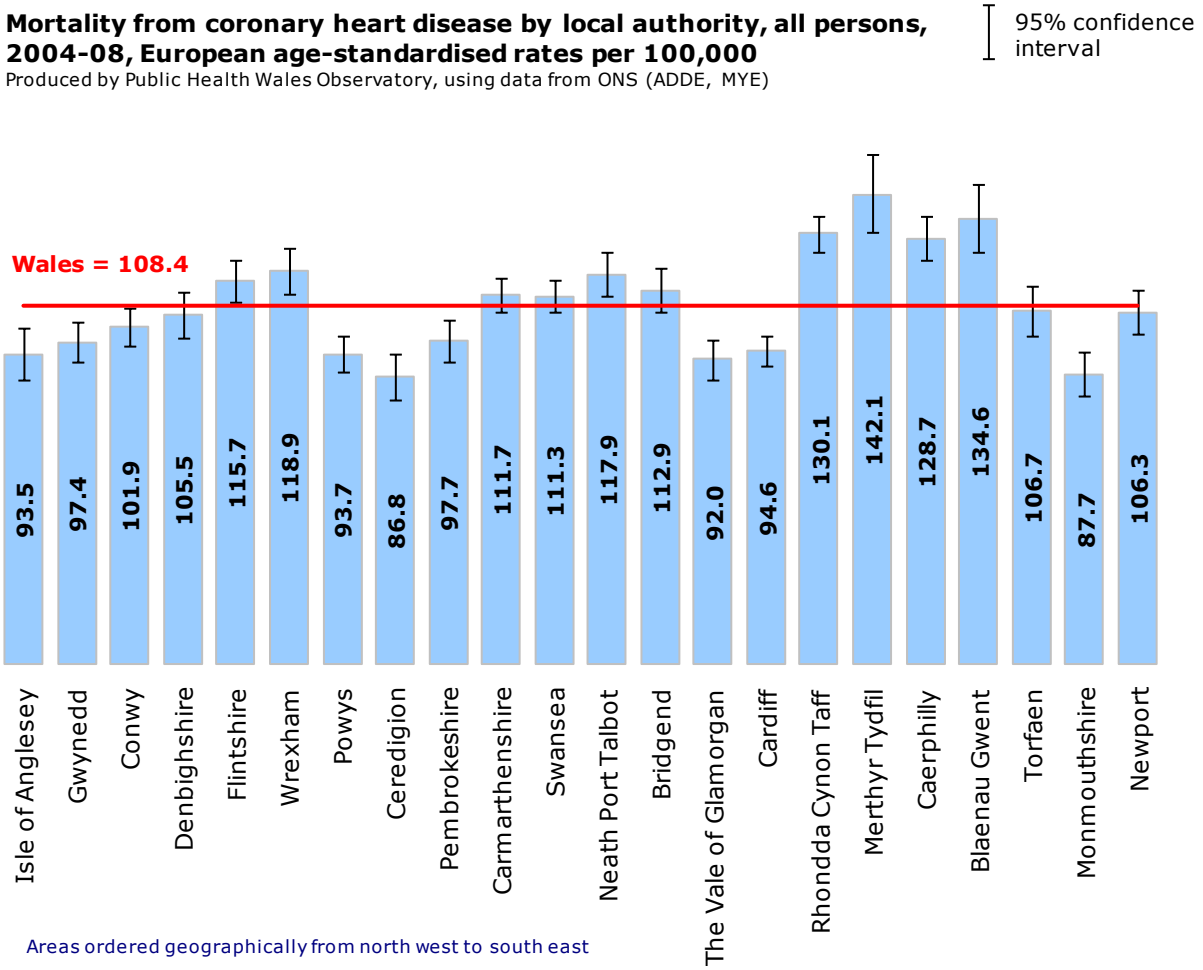
Numbers on map indicate MSOAs with a rate statistically significantly higher than the all Wales rate.

Mortality from coronary heart disease in Betsi Cadwaladr University Health Board area, all persons, 2004-08, European age-standardised rates per 100,000
Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)



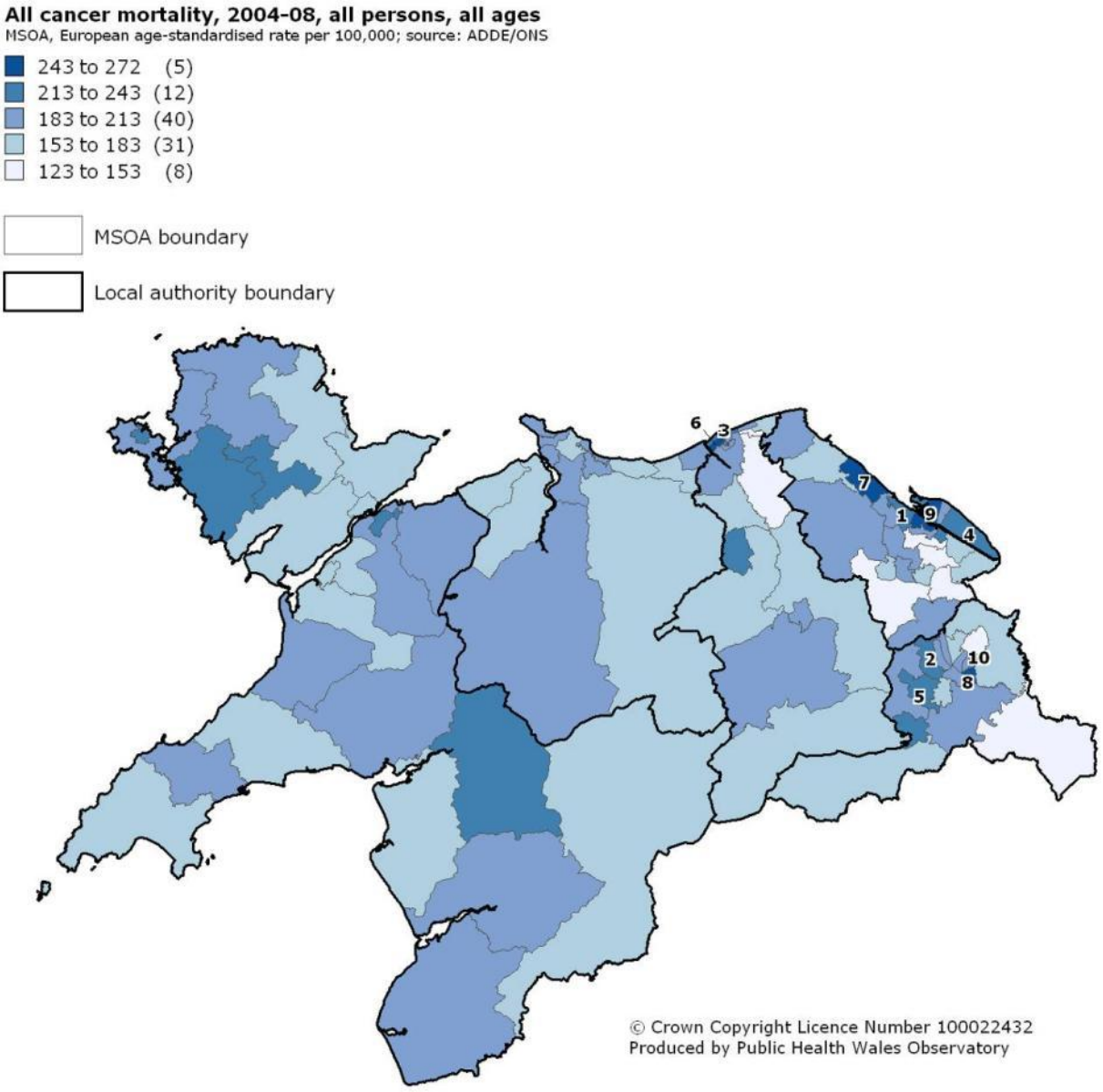
Local authorities

Mortality from coronary heart disease by local authority, all persons, 2004-08, European age-standardised rates per 100,000
Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)



5.3.4 Mortality from cancer

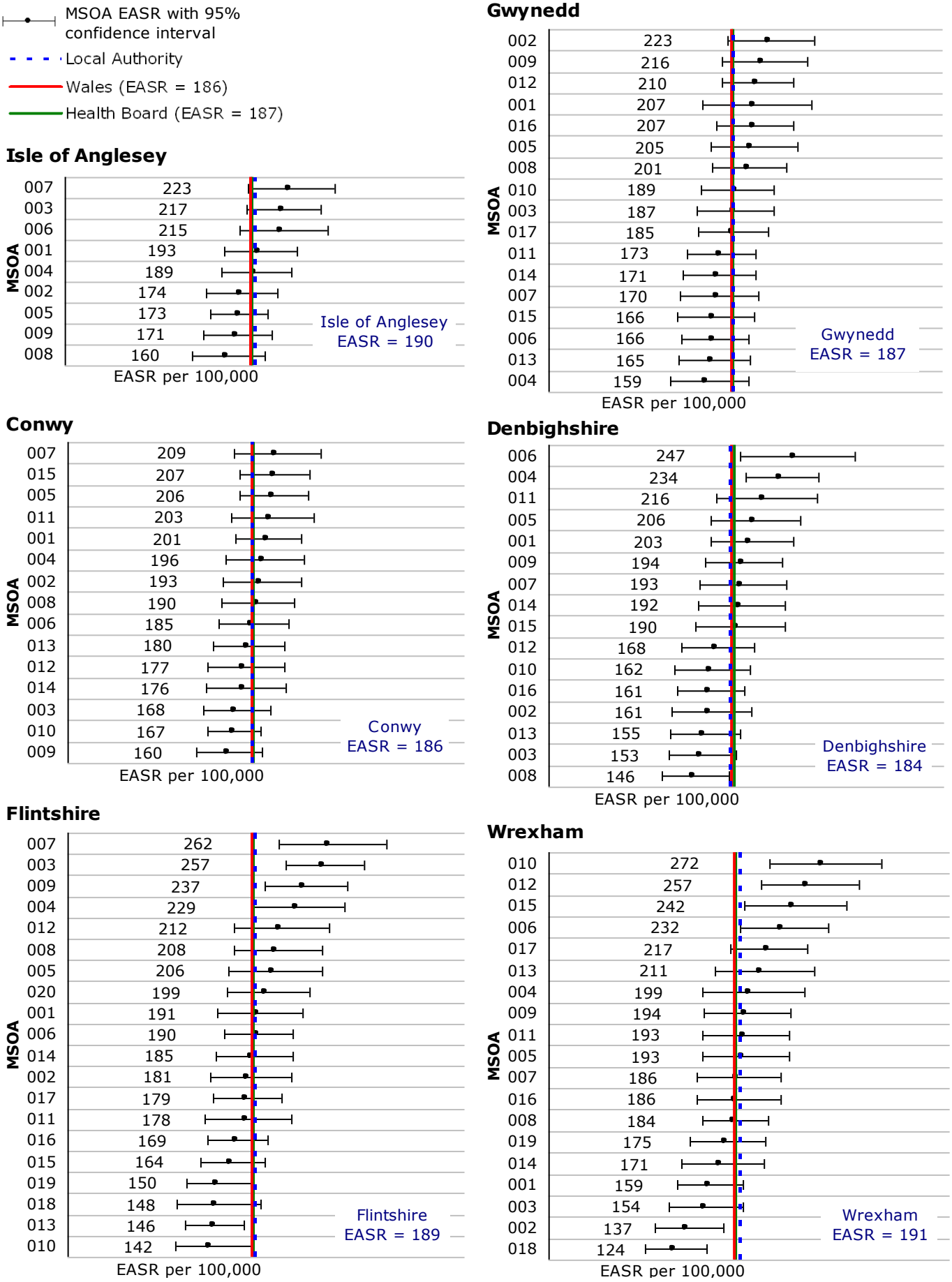
Middle super output areas



Numbers on map indicate MSOAs with a rate statistically significantly higher than the all Wales rate.

Mortality from all cancers in Betsi Cadwaladr University Health Board area, all persons, 2004-08, European age-standardised rates per 100,000

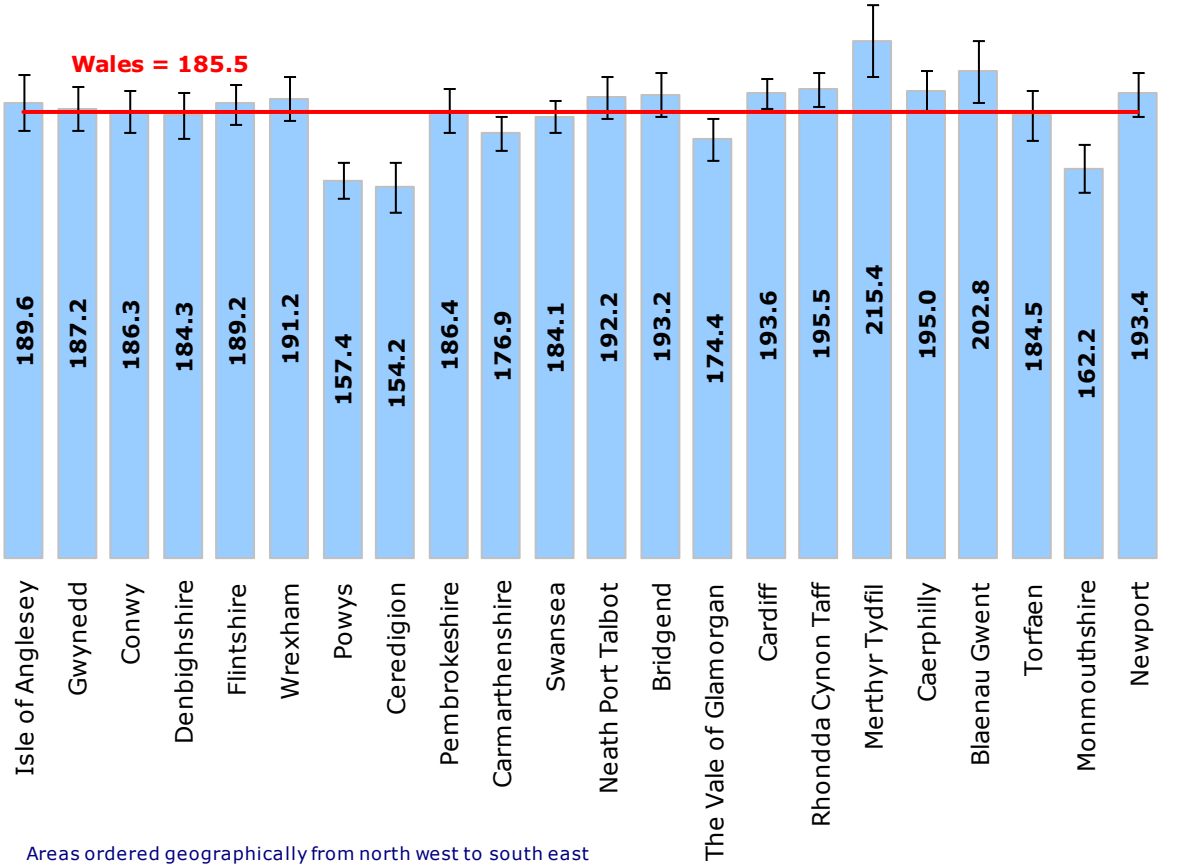
Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)



Local authorities

Mortality from all cancers by local authority, all persons, 2004-08, European age-standardised rates per 100,000

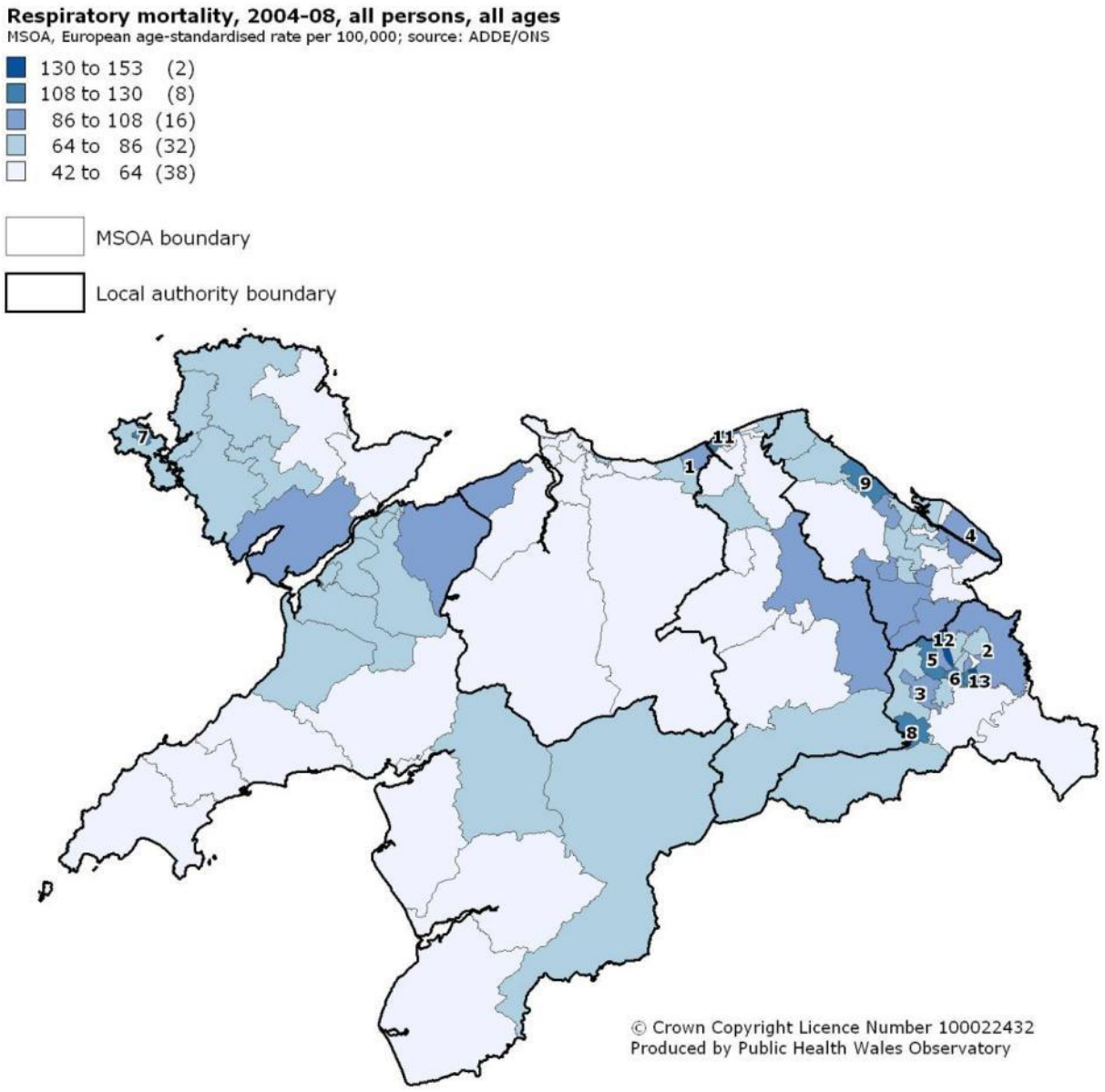
Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)



Areas ordered geographically from north west to south east

5.3.5 Mortality from respiratory disease

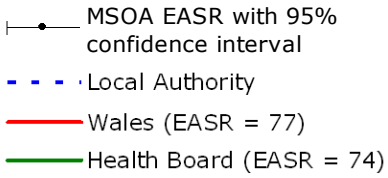
Middle super output areas



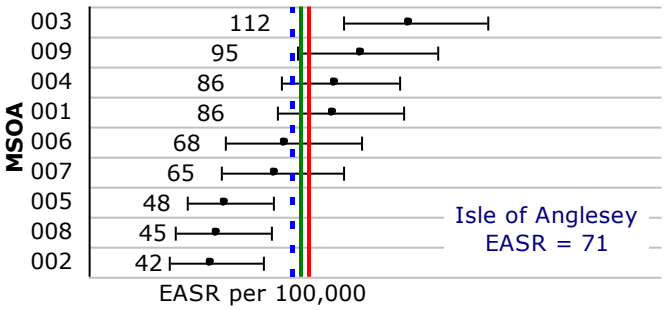
Numbers on map indicate MSOAs with a rate statistically significantly higher than the all Wales rate.

Mortality from respiratory disease in Betsi Cadwaladr University Health Board area, all persons, 2004-08, European age-standardised rates per 100,000

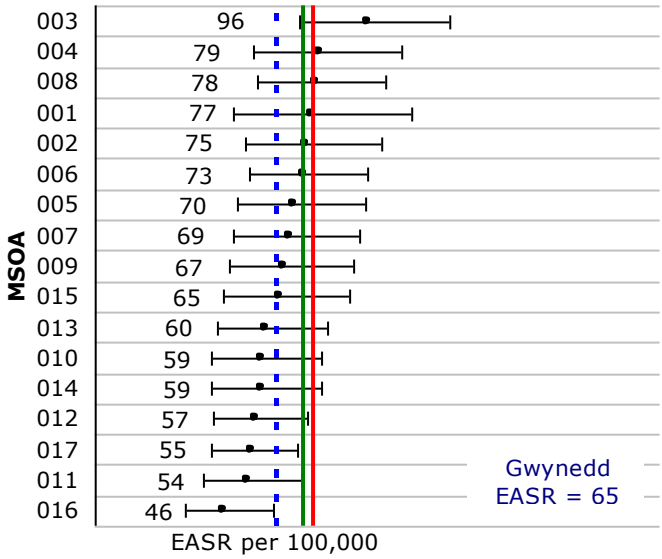
Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)



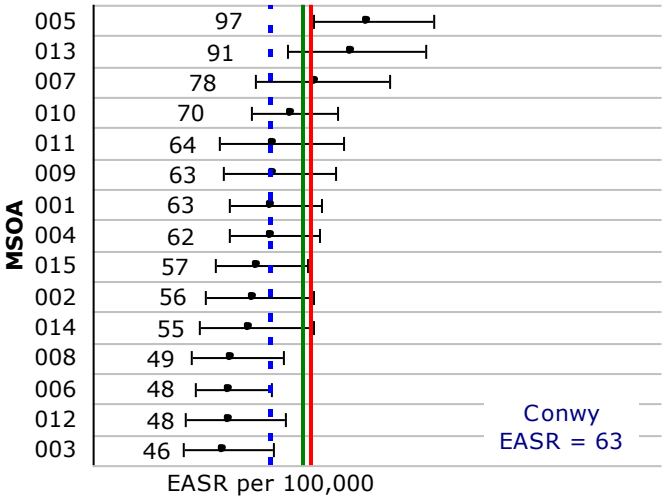
Isle of Anglesey



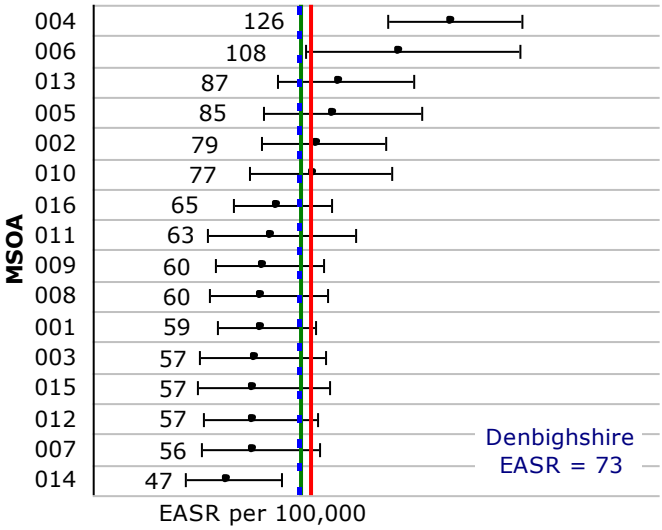
Gwynedd



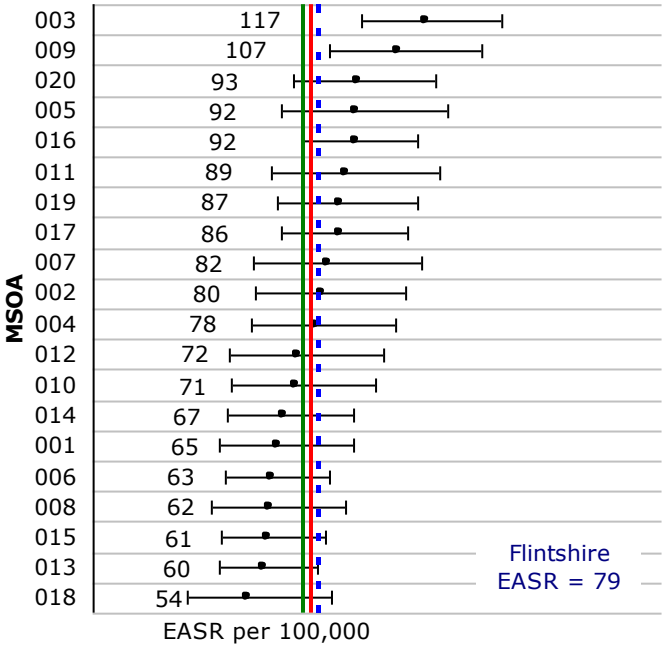
Conwy



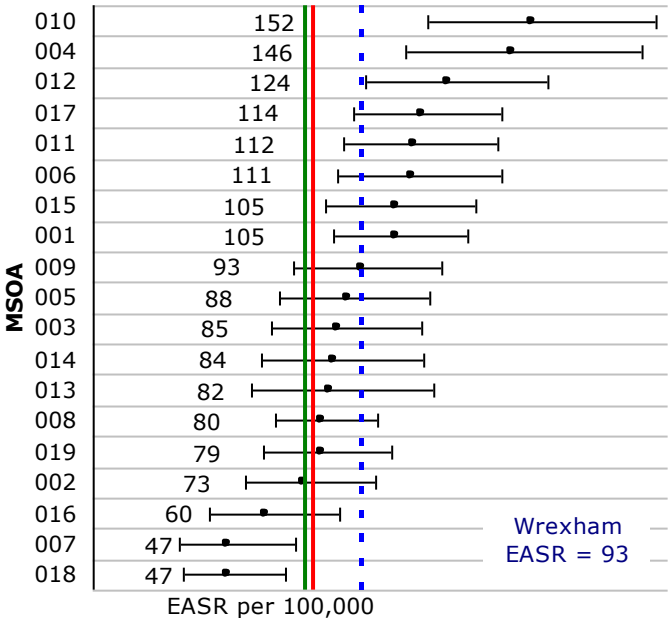
Denbighshire



Flintshire



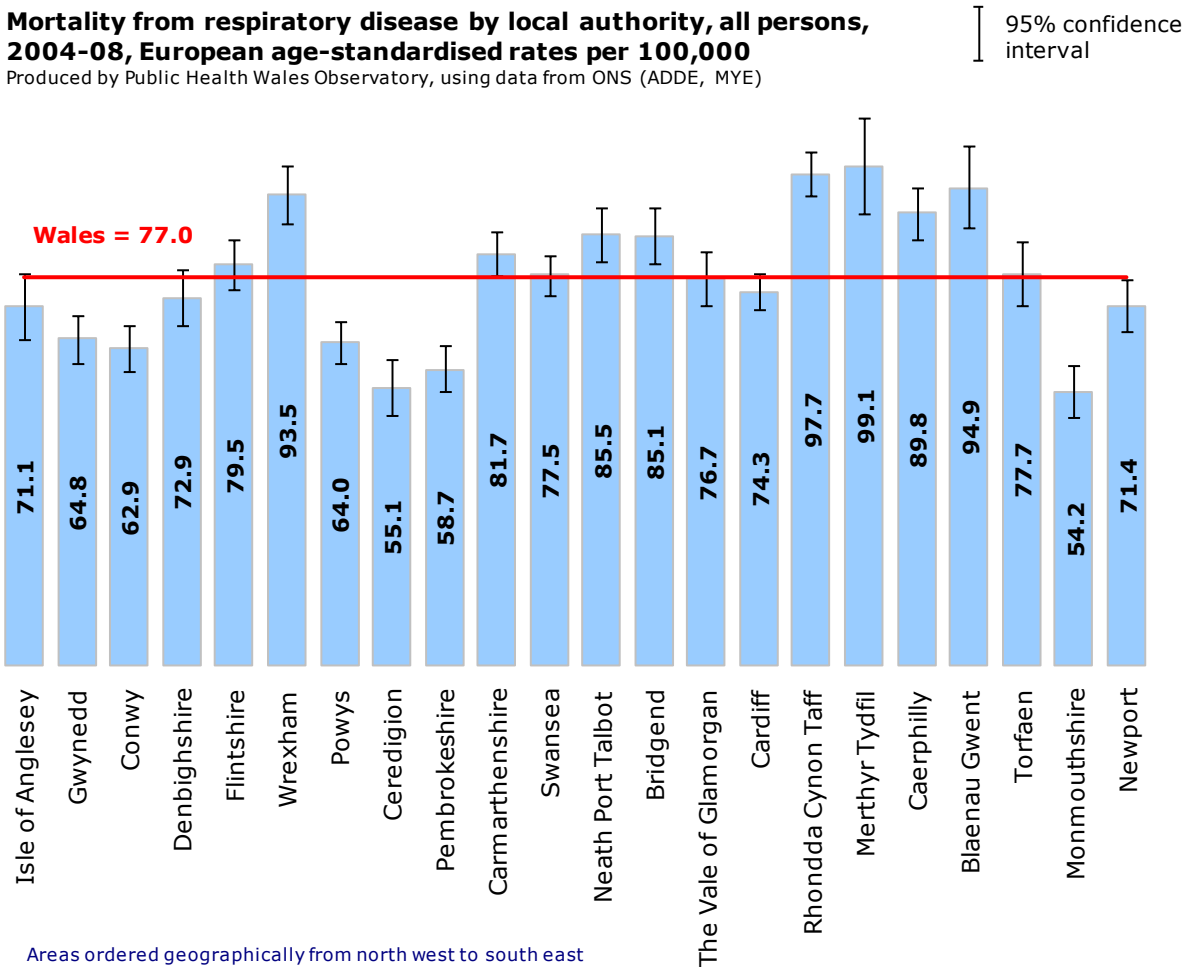
Wrexham



Local authorities

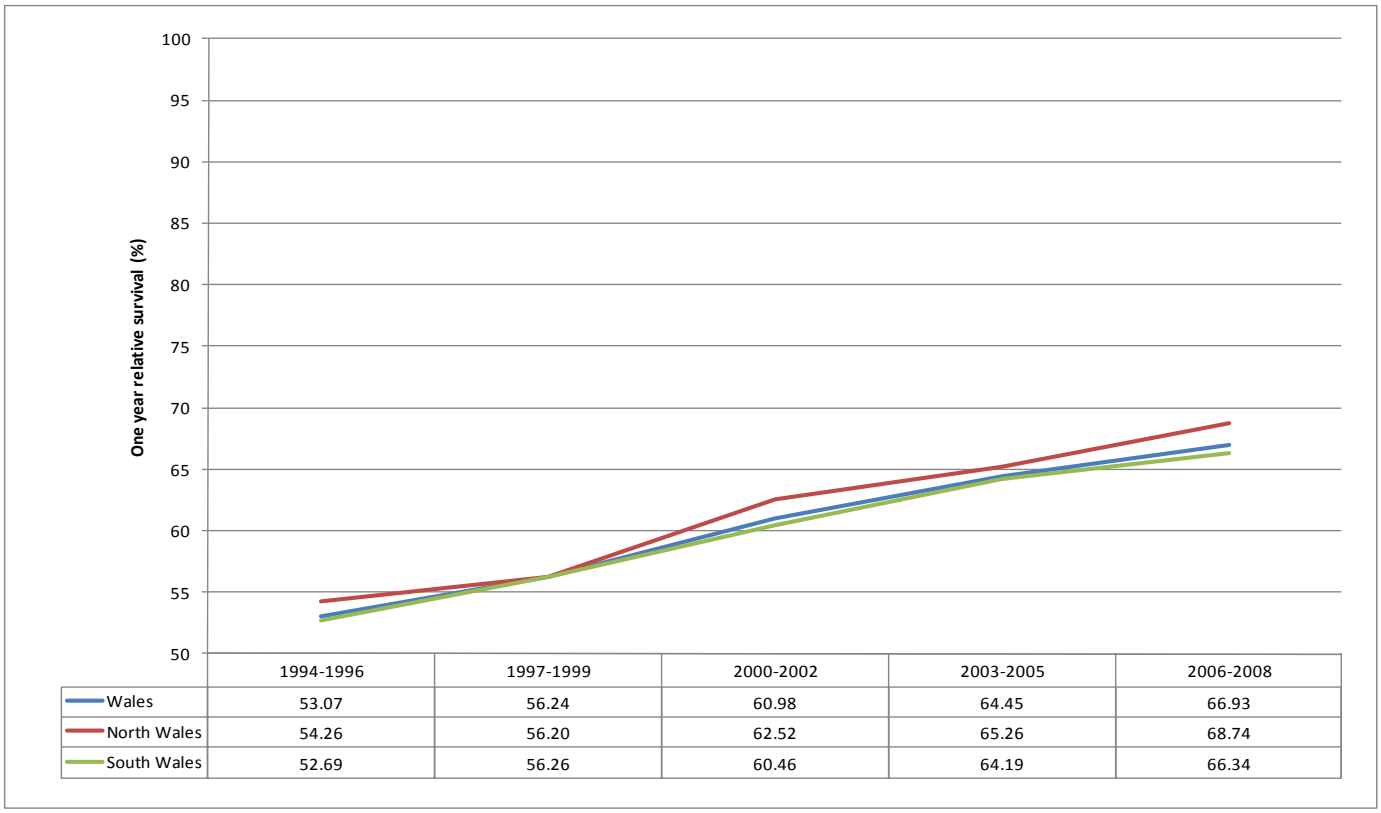
Mortality from respiratory disease by local authority, all persons, 2004-08, European age-standardised rates per 100,000

Produced by Public Health Wales Observatory, using data from ONS (ADDE, MYE)



5.3.6 Cancer survival

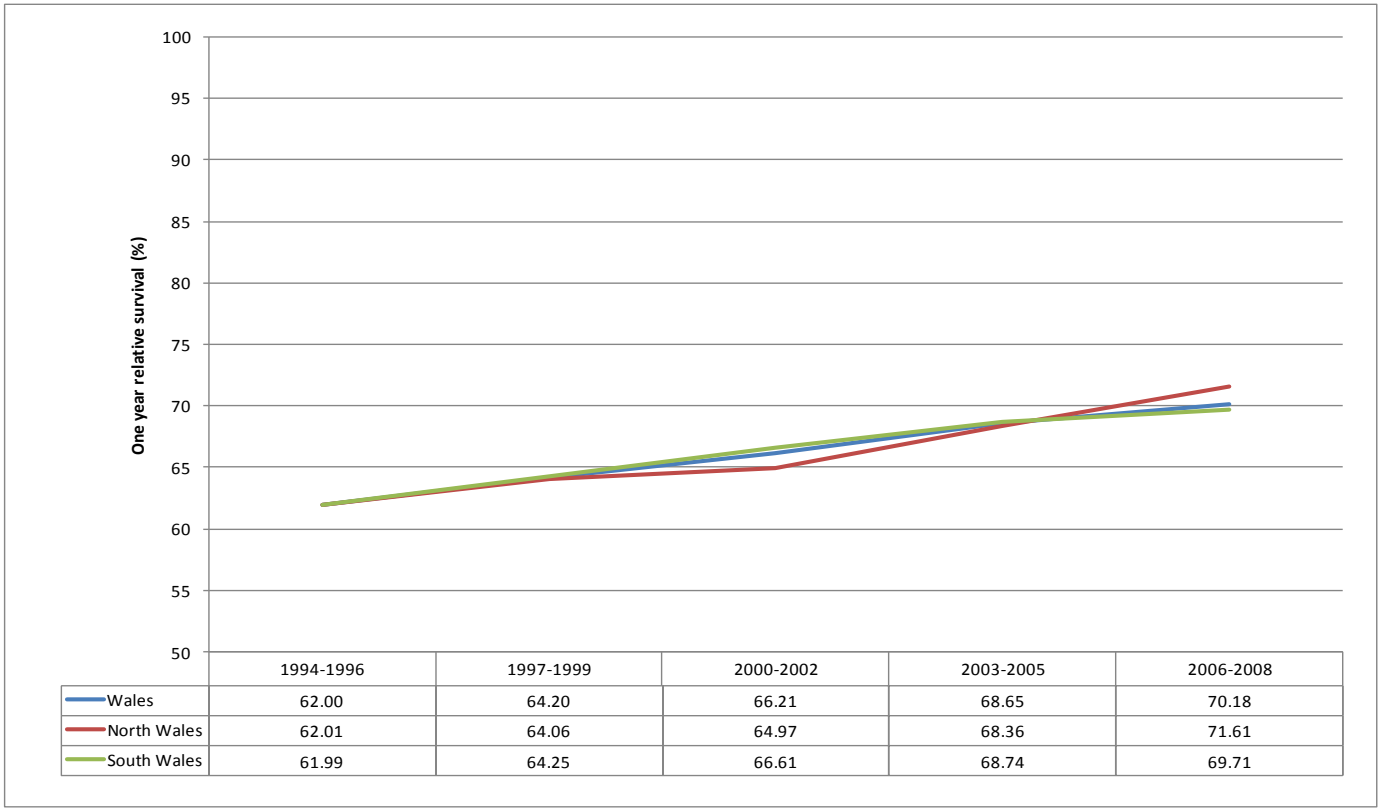
One year relative survival, all cancer (excluding non melanoma skin cancer), males, Wales regions, all persons, 1994/6-2006/8
Produced by the Welsh Cancer Intelligence and Surveillance Unit



	1994-1996	1997-1999	2000-2002	2003-2005	2006-2008
Wales	53.07	56.24	60.98	64.45	66.93
North Wales	54.26	56.20	62.52	65.26	68.74
South Wales	52.69	56.26	60.46	64.19	66.34

One year relative survival, all cancer (excluding non melanoma skin cancer), females, Wales regions, all persons, 1994/6-2006/8

Produced by the Welsh Cancer Intelligence and Surveillance Unit



	1994-1996	1997-1999	2000-2002	2003-2005	2006-2008
Wales	62.00	64.20	66.21	68.65	70.18
North Wales	62.01	64.06	64.97	68.36	71.61
South Wales	61.99	64.25	66.61	68.74	69.71

One year and five year relative survival, by cancer site Betsi Cadwaladr University Health Board area, males and females, 2000-2004 (95% confidence intervals)
Produced by the Welsh Cancer Intelligence and Surveillance Unit

Male

	1 year relative survival	
Cancer Site	**Betsi Cadwaladr**	**All Wales**
Prostate	89.37 (87.66, 90.85)	88.80 (87.95, 89.59)
Lung	24.02 (21.75, 26.35)	22.84 (21.71, 24.00)
Colorectal	73.70 (70.89, 76.28)	71.51 (70.12, 72.85)
Bladder	88.17 (84.93, 90.75)	86.10 (84.51, 87.53)
All malignancies (excl NMSC)	63.14 (62.08, 64.19)	62.11 (61.57, 62.63)

	5 year relative survival	
Cancer Site	**Betsi Cadwaladr**	**All Wales**
Prostate	77.81 (75.10, 80.27)	77.17 (75.83, 78.45)
Lung	6.14 (4.87, 7.60)	5.36 (4.73, 6.04)
Colorectal	52.99 (49.52, 56.33)	48.59 (46.91, 50.24)
Bladder	73.96 (69.14, 78.14)	72.34 (70.04, 74.50)
All malignancies (excl NMSC)	46.39 (45.17, 47.60)	45.39 (44.79, 45.99)

Female

	1 year relative survival	
Cancer Site	**Betsi Cadwaladr**	**All Wales**
Breast	93.08 (91.84, 94.14)	93.41 (92.83, 93.94)
Lung	25.46 (22.63, 28.38)	25.53 (24.09, 26.99)
Colorectal	67.11 (63.82, 70.17)	68.80 (67.19, 70.36)
Ovary	60.38 (55.00, 65.32)	63.92 (61.50, 66.24)
Corpus Uteri	90.11 (85.89, 93.12)	89.83 (87.90, 91.46)
All malignancies (excl NMSC)	66.40 (65.32, 67.45)	67.24 (66.71, 67.76)

	5 year relative survival	
Cancer Site	**Betsi Cadwaladr**	**All Wales**
Breast	82.54 (80.66, 84.25)	82.06 (81.14, 82.94)
Lung	9.56 (7.64, 11.72)	6.85 (6.00, 7.76)
Colorectal	48.10 (44.41, 51.68)	49.18 (47.31, 51.01)
Ovary	35.97 (30.73, 41.22)	39.29 (36.78, 41.80)
Corpus Uteri	79.39 (73.65, 84.02)	77.77 (75.02, 80.25)
All malignancies (excl NMSC)	52.95 (51.74, 54.14)	52.76 (52.17, 53.36)

Significantly higher than Wales
Significantly lower than Wales

Excl NSCM: Excluding non melanoma skin cancer

Appendix A: Original source reports and further information

The original reports for the data included in this chart book, together with further information and, in some cases, methodological information and other guides to interpretation can be found through the producers of the charts, tables or data included:

Demography	Public Health Wales Observatory	www.publichealthwalesobservatory.wales.nhs.uk
Determinants of health	Public Health Wales Observatory	www.publichealthwalesobservatory.wales.nhs.uk
Use of prevention services: vaccination uptake	Vaccine Preventable Disease Programme	http://www.wales.nhs.uk/sitesplus/888/page/43510
Use of prevention services: screening	Public Health Wales Screening Services	http://www.screeningservices.org.uk/
Use of primary care by adults	Welsh Assembly Government, Welsh Health Survey	http://new.wales.gov.uk/
Use of secondary and tertiary care	Public Health Wales Observatory	www.publichealthwalesobservatory.wales.nhs.uk
Health status	Public Health Wales Observatory	www.publichealthwalesobservatory.wales.nhs.uk
Cancer survival	Welsh Cancer Surveillance and Intelligence Unit	http://www.wales.nhs.uk/sites3/home.cfm?OrgID=242

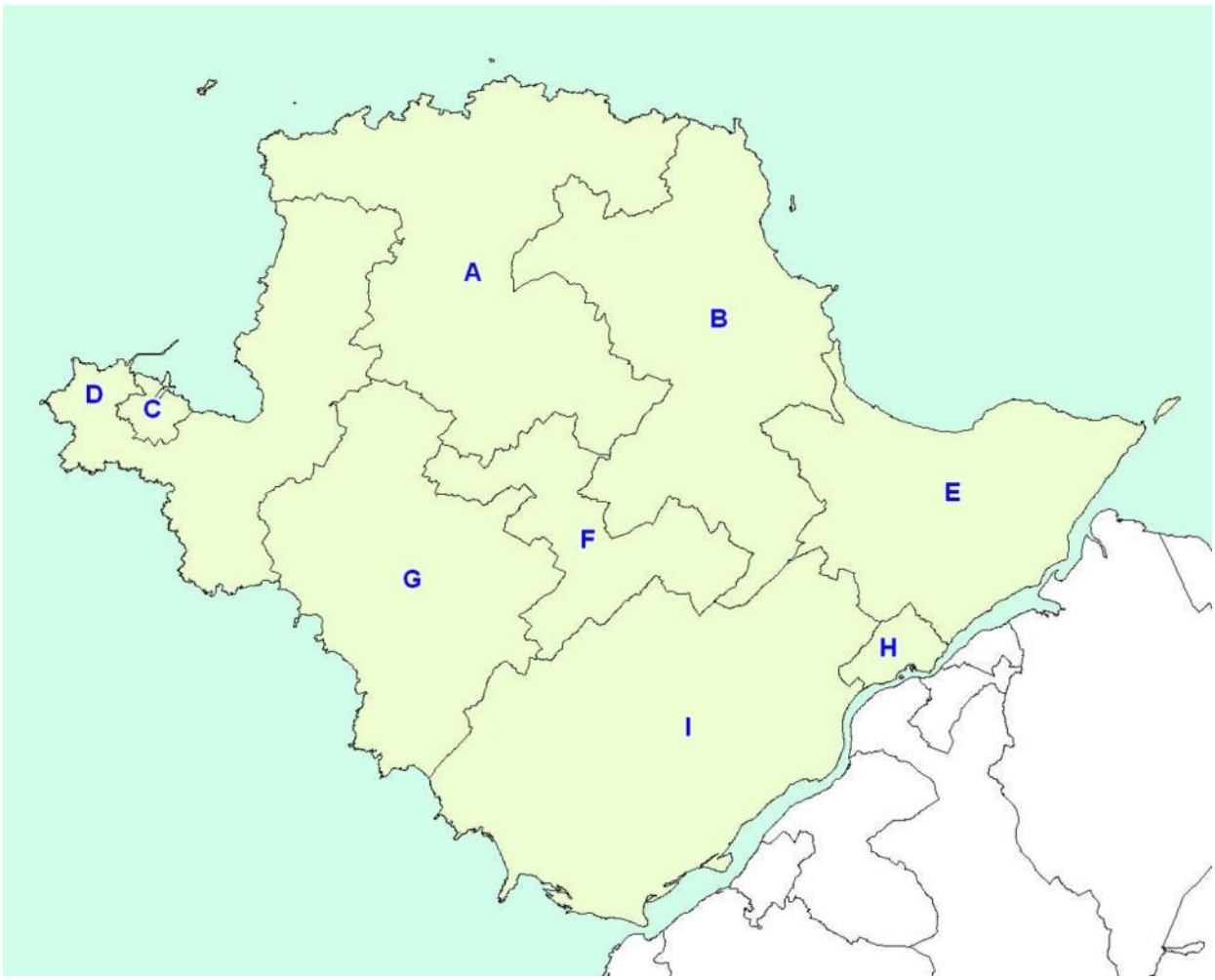
Appendix B: Glossary

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 96 in the Betsi Cadwaladr University Health Board area. These are shown on the maps in Appendix 2. 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.
Age-standardised rate	Age-standardisation allows comparison of rates across different populations while taking account of the different age structures of those populations. This chart book uses the direct standardisation method, which produces the rate you would get if the population had the same age-structure as a particular 'standard' population. The Wales standard population has been used for the Welsh Health Survey indicators and the theoretical European standard population (ESP) has been used for all other age-standardised indicators included in this chart book. An age-standardised rate only allows for comparison between the rates which have been standardised to the same standard population.
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.
Statistical significance	A result may be deemed statistically significant if it is considered unlikely to have occurred by chance alone. The basis for such judgements is a predetermined and arbitrary cut-off, usually taken as 5% or 0.05. A result may be clinically significant whilst not being statistically significant and vice versa.

Appendix C: Maps showing Middle Super Output Areas in the Betsi Cadwaladr University Health Board area

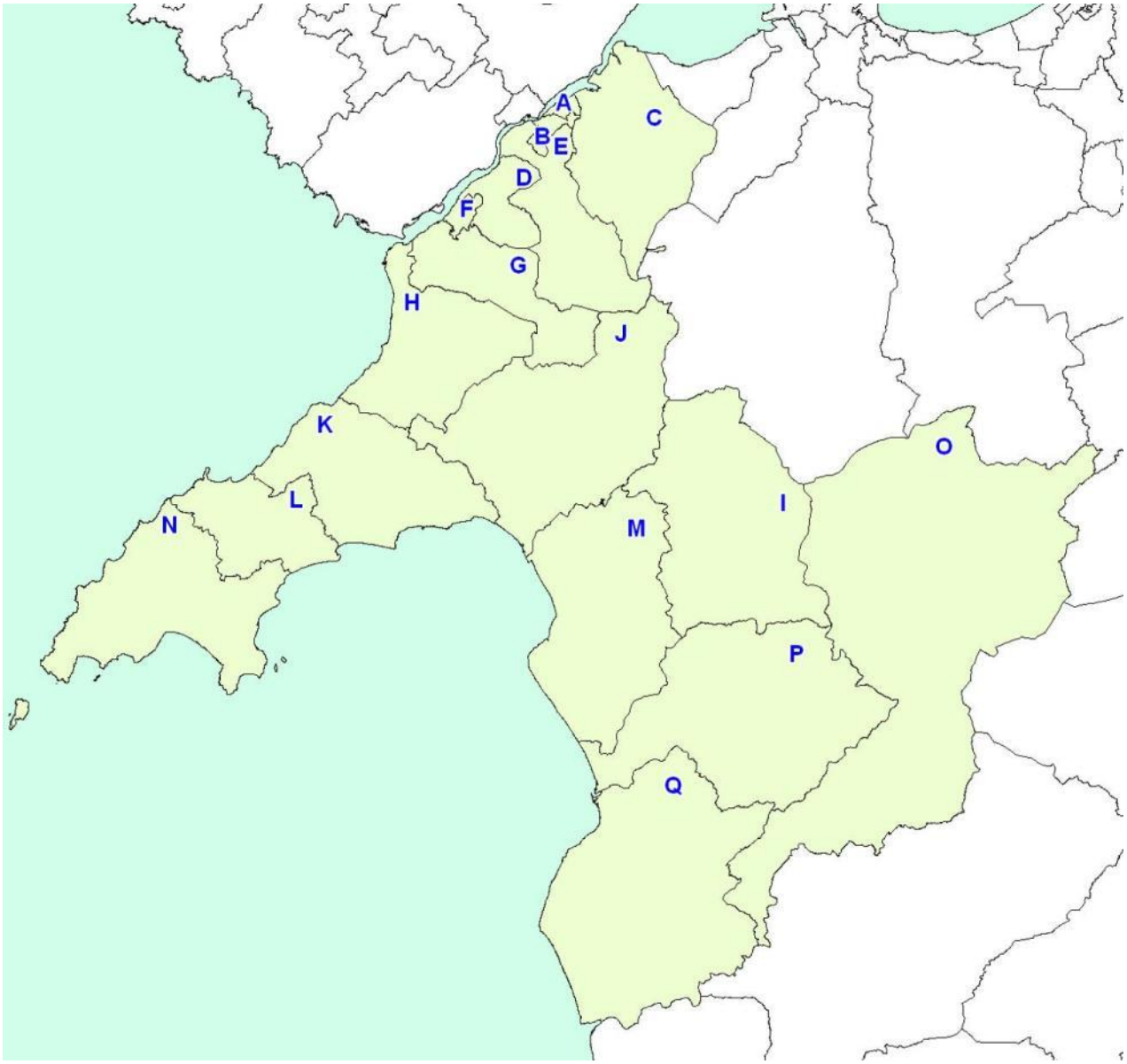
The Public Health Wales Observatory has also produced a web-based interactive map showing MSOA boundaries, with the added facility of background Ordnance Survey mapping. Follow this link: http://www.wales.nhs.uk/sitesplus/922/page/49851

Isle of Anglesey



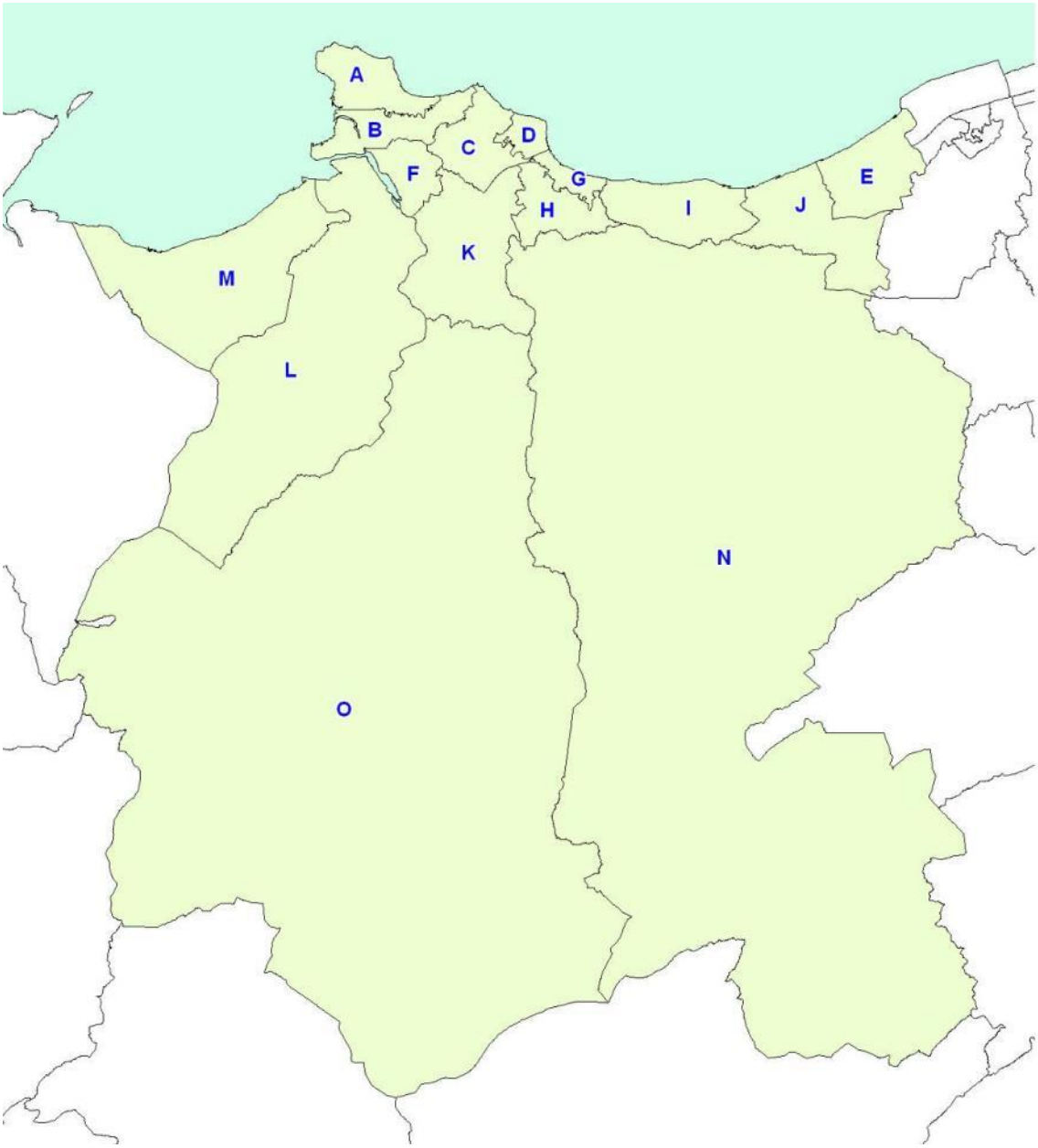
A	Isle of Anglesey 001
B	Isle of Anglesey 002
C	Isle of Anglesey 003
D	Isle of Anglesey 004
E	Isle of Anglesey 005
F	Isle of Anglesey 006
G	Isle of Anglesey 007
H	Isle of Anglesey 008
I	Isle of Anglesey 009

Gwynedd



A	Gwynedd 001	J	Gwynedd 010
B	Gwynedd 002	K	Gwynedd 011
C	Gwynedd 003	L	Gwynedd 012
D	Gwynedd 004	M	Gwynedd 013
E	Gwynedd 005	N	Gwynedd 014
F	Gwynedd 006	O	Gwynedd 015
G	Gwynedd 007	P	Gwynedd 016
H	Gwynedd 008	Q	Gwynedd 017
I	Gwynedd 009		

Conwy



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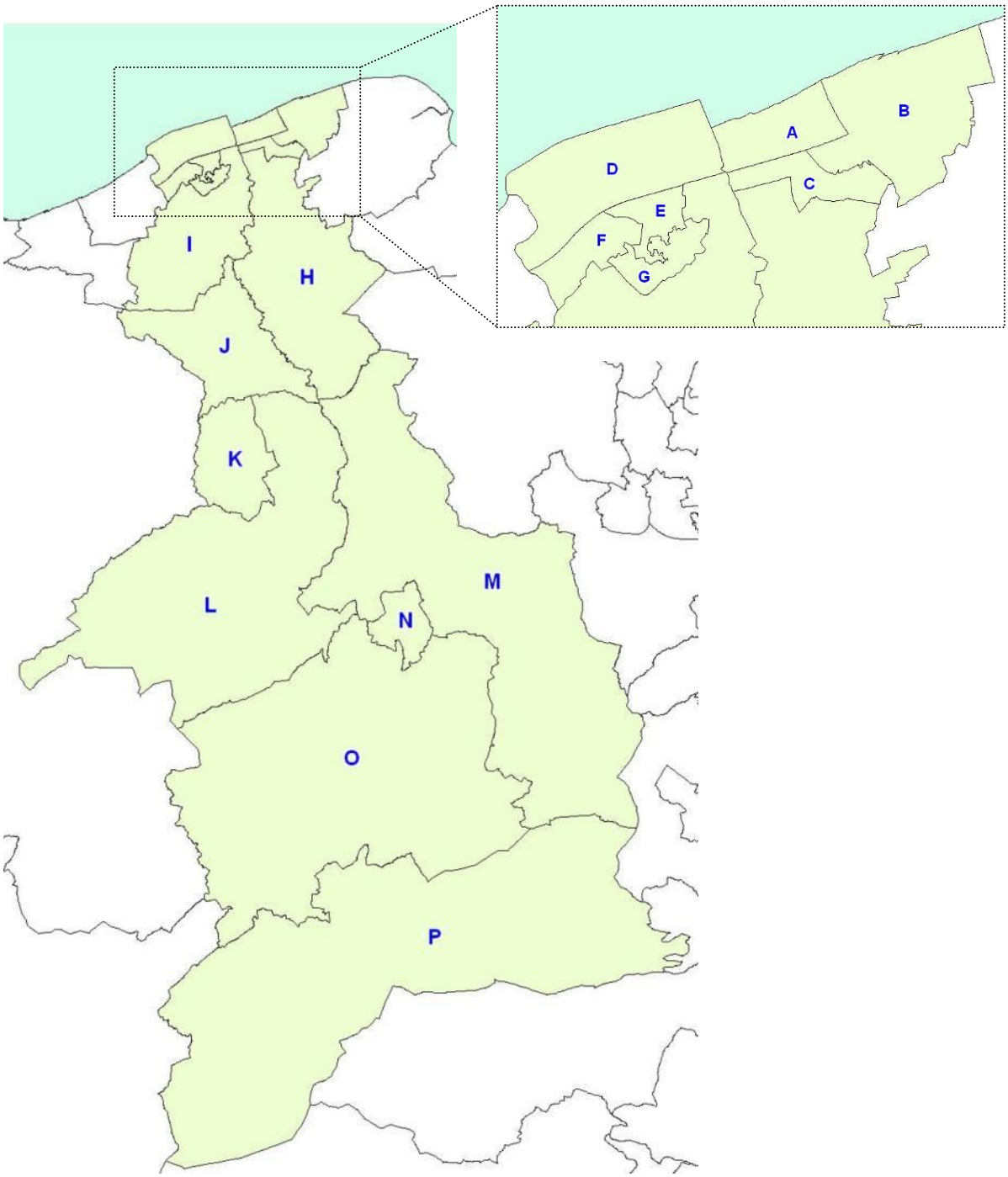
B	Conwy 002	I	Conwy 009
C	Conwy 003	J	Conwy 010
D	Conwy 004	K	Conwy 011
E	Conwy 005	L	Conwy 012
F	Conwy 006	M	Conwy 013
G	Conwy 007	N	Conwy 014
		O	Conwy 015

Denbighshire



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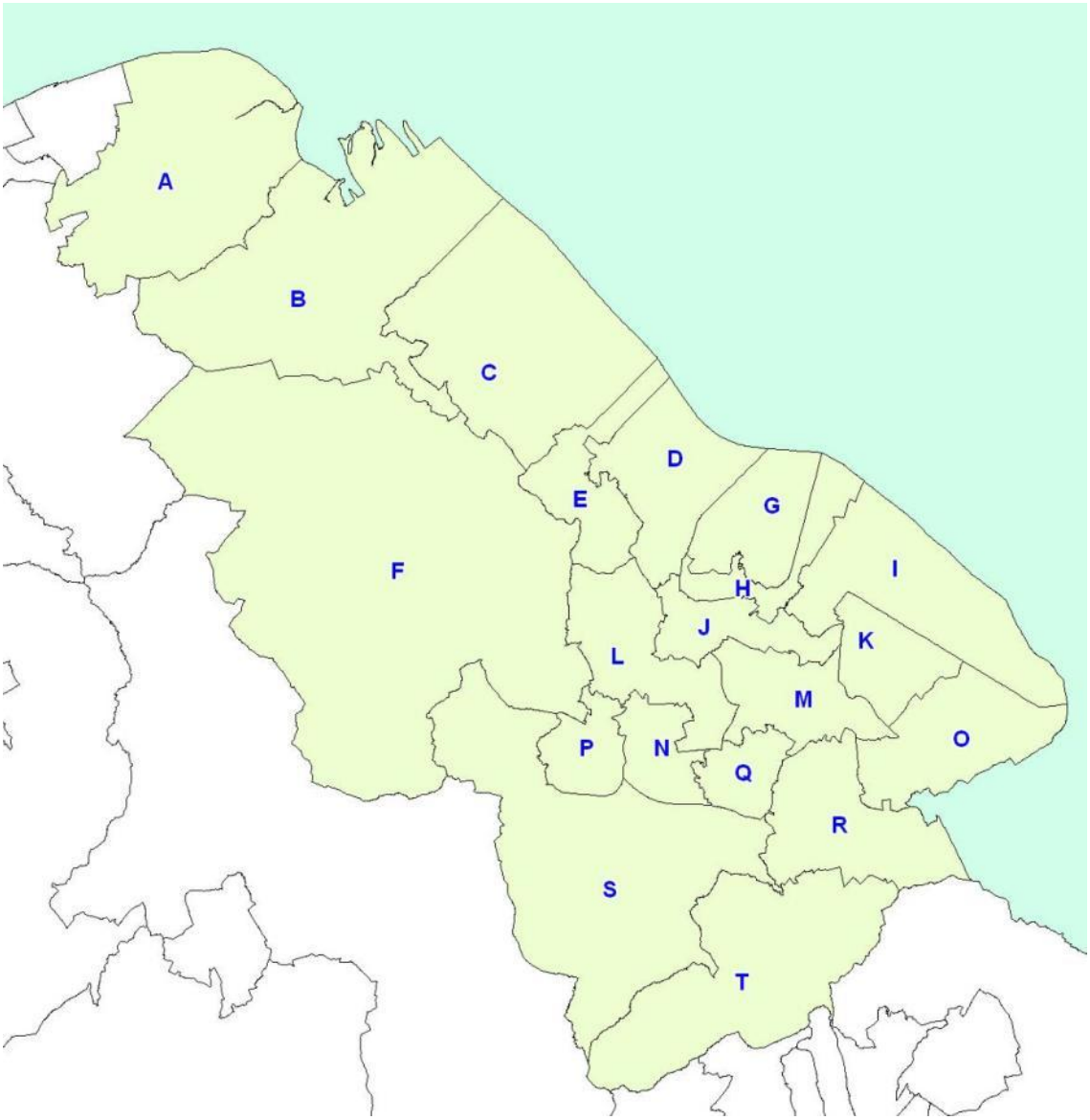
B	Denbighshire 002	J	Denbighshire 010
C	Denbighshire 003	K	Denbighshire 011
D	Denbighshire 004	L	Denbighshire 012
E	Denbighshire 005	M	Denbighshire 013
F	Denbighshire 006	N	Denbighshire 014
G	Denbighshire 007	O	Denbighshire 015
H	Denbighshire 008	P	Denbighshire 016

Flintshire



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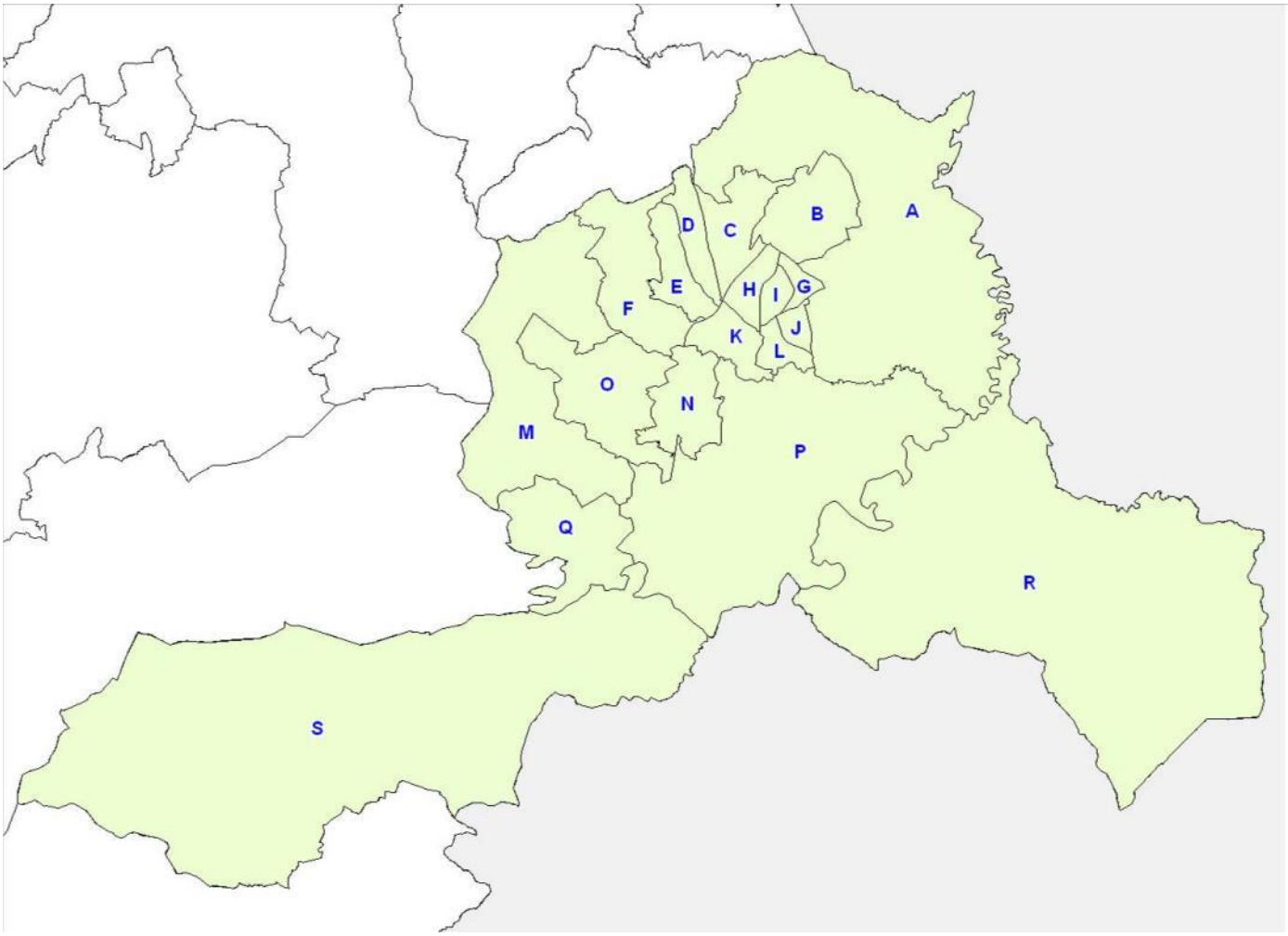
B	Flintshire 002	L	Flintshire 012
C	Flintshire 003	M	Flintshire 013
D	Flintshire 004	N	Flintshire 014
E	Flintshire 005	O	Flintshire 015
F	Flintshire 006	P	Flintshire 016
G	Flintshire 007	Q	Flintshire 017
H	Flintshire 008	R	Flintshire 018
I	Flintshire 009	S	Flintshire 019
J	Flintshire 010	T	Flintshire 020

Wrexham



A	Wrexham 001	K	Wrexham 011
B	Wrexham 002	L	Wrexham 012
C	Wrexham 003	M	Wrexham 013
D	Wrexham 004	N	Wrexham 014
E	Wrexham 005	O	Wrexham 015
F	Wrexham 006	P	Wrexham 016
G	Wrexham 007	Q	Wrexham 017
H	Wrexham 008	R	Wrexham 018
I	Wrexham 009	S	Wrexham 019
J	Wrexham 010		