Public Health Outcomes Framework for Wales reporting tool

Technical guide

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

This document is part of the *Public Health Outcomes Framework for Wales reporting tool*:

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Contents

1. Introduction 1

2. Geography 2

2.1 Geographies used 2

2.2 Criteria for inclusion of sub local authority data 4

3. Interpretation Guide 5

3.1 How to interpret life expectancy at birth 5

3.2 How to interpret healthy life expectancy at birth 5

3.3 How to interpret confidence intervals 6

3.4 How to interpret local and national deprivation fifths 6

3.5 How to interpret rural and urban classification 7

4. Data sources 9

4.1 Annual Population Survey 9

4.2 Health Behaviour in School-aged Children 10

4.3 Mid-year population estimates 11

4.4 National Community Child Health Database 12

4.5 National Survey for Wales 13

4.6 Patient Episode Database for Wales 16

4.7 Public Health Mortality 17

4.8 Welsh Health Survey 19

4.9 Welsh Index of Multiple Deprivation 20

4.10 Foundation Phase Framework 21

5. Indicators 23

5.1 Overarching outcomes 23

5.1.1. Life expectancy at birth 23

5.1.2. Healthy life expectancy at birth 24

5.1.3. Mental well-being among children and young people (NI) 26

5.1.4. Mental well-being among adults (NI) 27

5.1.5. The gap in life expectancy at birth between the most and least deprived 29

5.1.6. The gap in healthy life expectancy at birth between the most and least deprived (NI) 30

5.1.7. The gap in mental well-being between the most and least deprived among children and young people 30

5.1.8. The gap in mental well-being between the most and least deprived among adults 30

5.2 Living conditions that support and contribute to health now and for the future 31

5.2.1. Children living in poverty 31
5.2.2. Young children developing the right skills (NI) 32
5.2.3. School leavers with skills and qualifications (NI) 33
5.2.4. School leavers with essential literacy and numeracy skills 36
5.2.5. People able to afford everyday goods and activities (NI) 36
5.2.6. People in education, employment or training (NI) 38
5.2.7. Gap in employment rate for those with a long term health condition 39
5.2.8. A sense of community (NI) 40
5.2.9. People who volunteer (NI) 42
5.2.10. People feeling lonely (NI) 44
5.2.11. Quality of housing (NI) 46
5.2.12. Quality of the air we breathe 47
5.3 Ways of living that improve health 48
5.3.1. Physical activity in adolescents 48
5.3.2. Adolescents who smoke 50
5.3.3. Adolescents using alcohol 51
5.3.4. Adolescents drinking sugary drinks once a day or more 52
5.3.5. Adults eating five fruit or vegetable portions a day 54
5.3.6. Adults meeting physical activity guidelines 56
5.3.7. Adults who smoke 59
5.3.8. Adults drinking above guidelines 61
5.3.9. Teenage pregnancies 64
5.3.10. Smoking in pregnancy 65
5.3.11. Breastfeeding at 10 days 65
5.3.12. Vaccination rates at age 4 67
5.4 Health throughout the life-course 68
5.4.1. Low birth weight (NI) 68
5.4.2. Children age 5 of a healthy weight 69
5.4.3. Adolescents of healthy weight 71
5.4.4. Tooth decay among 5 year olds 73
5.4.5. Working age adults in good health 74
5.4.6. Working age adults free from limiting long term illness 76
5.4.7. Life satisfaction among working age adults 77
5.4.8. Working age adults of healthy weight 79
5.4.9. Older people in good health 81
5.4.10. Older people free from limiting long term illness 83
5.4.11. Life satisfaction among older people 84

5.4.12. Older people of healthy weight 86
5.4.13. Hip fractures among older people 88
5.4.14. Premature deaths from key non communicable diseases 90
5.4.15. Deaths from injuries 91
5.4.16. Deaths from road traffic injuries 93
5.4.17. Suicides 95

6. Glossary 98

6.1 Abbreviations 98

6.2 Definitions 99

7. Appendix A– Indicator map 102

1. Introduction

This guide describes the methods, indicators, data sources and terms used in the Public Health Outcomes Framework (PHOF) reporting tool. It also provides definitions, notes for interpretation, and details of where to find further information. Where possible, indicators have been broken down by different characteristics. In general, each indicator is only broken down by one characteristic at a time. A list of the available breakdowns for each indicator can be found in Appendix A (indicator map).

2. Geography

2.1 Geographies used

Indicators are provided at different geographical levels within the reporting tool, details for each are included below. A summary of the available geography breakdowns by indicator can be found in Appendix A (indicator map). Maps of the different geography boundaries (pre-April 2019 health board boundary change) can be viewed in our Interactive Geographies Atlas which can be accessed: http://www.publichealthwalesobservatory.wales.nhs.uk/geographies-atlas-2015.

Wales

Unless otherwise stated in this guide, data is presented for those resident in Wales and the geographies within (see below).

Health board

There are seven health boards within Wales. As of 1st April 2019, these are: Aneurin Bevan University Health Board, Betsi Cadwaladr University Health Board, Cwm Taf Morgannwg University Health Board, Cardiff and Vale University Health Board, Hywel Dda University Health Board, Powys Teaching Health Board and Swansea Bay University Health Board.

Prior to 1st April 2019, the seven health boards were: Abertawe Bro Morgannwg University Health Board, Aneurin Bevan University Health Board, Betsi Cadwaladr University Health Board, Cwm Taf University Health Board, Cardiff and Vale University Health Board, Hywel Dda University Health Board and Powys Teaching Health Board.

On 1st April 2019 the responsibility for healthcare services in Bridgend County Borough Council area transferred to Cwm Taf University Health Board (now renamed Cwm Taf Morgannwg University Health Board) from Abertawe Bro Morgannwg University Health Board (now renamed Swansea Bay University Health Board), with the health board boundary moving accordingly.

As such, the names of the health boards changed to reflect the new geographical boundaries.

All indicators are reported using the current health board boundaries unless otherwise stated.

Local authority

There are 22 local authority areas in Wales. They were established in 1996 and are nested within the health board areas.

Upper Super Output Area (USOA)

Defined geographical area based on Census output areas with an average of around 31,000 persons per USOA. There are 94 USOAs in Wales, and the number of USOAs varies between health boards. USOAs are nested within local authority boundaries.

Middle Super Output Area (MSOA)

Defined geographical area based on Census output areas with an average of 7,000 persons per MSOA. There are 410 MSOAs in Wales, and the number of MSOAs can vary between health boards. MSOAs are nested within USOA boundaries.

Lower Super Output Area (LSOA)

Defined geographical area based on Census output areas with an average of 1,500 persons per LSOA. There are 1909 LSOAs in Wales, and the number of LSOAs can vary widely between health boards. LSOAs are nested within MSOA boundaries.

2.2 Criteria for inclusion of sub local authority data

The following criteria have been used to determine what indicators are presented at the USOA, MSOA and LSOA geographies.

Welsh Health Survey data
We have replicated the criteria used by Welsh Government i.e. aggregate 6-years data for USOAs.

Other data sources

- Age-standardised rates have only been included where the number of events >=10
- Crude rates are only included where the population >=30*
- We haven't combined more than 10 years data
- If 95%+ of areas within a given geography / period combination met the relevant rule(s) above, we produced the indicator for that geography using the shortest valid period. All areas within the given geography not meeting the rule(s) were supressed.

  * this method resulted in a large number of areas having <3 events for low birth weight so it was decided to aggregate additional years just for this indicator at the LSOA and MSOA levels.

Suicides
Following the rules above meant we could have released USOA level suicide data. However, following discussion with the National Lead for Suicide, it was agreed that the data would not be released at this level. This was primarily due to the potential to cause alarm in those areas rated high compared to Wales when the robustness of the data and caveats are difficult to communicate.

3. Interpretation Guide

3.1 How to interpret life expectancy at birth

Life expectancy at birth represents an estimate of the average number of years a newborn baby could expect to live, if the current mortality rates for the area are applied throughout their lives. Mortality rates, however, are likely to change during their life and many people may also move elsewhere for at least part of their lives. Life expectancy is therefore a comparative population measure of mortality of those living in the area rather than an exact prediction of individual life expectancy for a newborn. The details of the method of calculation, data sources and caveats can be found in Section 5.1.1.

Life expectancy estimates are directly comparable between areas, time periods and sexes. Ninety five per cent confidence intervals have been produced which describe the degree of uncertainty around the estimates. These intervals can be used to ascertain the statistical significance of a difference between two estimates. If, for example, the confidence intervals between the life expectancy estimate in the earlier period and the estimate in the later period overlap, then the difference between the two is not statistically significant (see figure 1 for illustration).

3.2 How to interpret healthy life expectancy at birth

Healthy life expectancy (HLE) at birth is an estimate of the average number of years newborn babies could expect to live in good health, if the then current mortality rates and prevalence of good health applied throughout their lives. Mortality rates and prevalence of good health are, however, likely to change during their life and HLE is therefore a comparative population measure of mortality and good health rather than an exact prediction of individual HLE. The details of the method of calculation, data sources and caveats can be found in Section 5.1.2.

Healthy life expectancy estimates are comparable between areas, time periods and sexes. Also included are ninety five per cent confidence intervals, which describe the degree of uncertainty around the estimates. These reflect the size of the population and also the certainty of the survey data for good health. An area with a large population and a large sample size will have relatively narrow confidence intervals, whilst areas with a small population and a small sample size will have large confidence intervals. These intervals can be used to ascertain the statistical significance of a difference between two estimates. If, for example, the confidence intervals between the healthy life expectancy estimate in the earlier period and the estimate in the later period do not overlap, then the difference between the two is statistically significant (see figure 1 for illustration). The interpretation of results in areas with small populations and sample sizes and resulting large confidence intervals is generally more difficult.

The HLE estimates are very sensitive to variation in health status data, particularly in the older age groups, where there are fewer survey responses. Annual Population Survey data is self-reported and subject to the individual's own perception of health.

3.3 How to interpret confidence intervals

Confidence intervals are indications of the natural variation that would be expected around a rate and they should be considered when assessing or interpreting a rate. The size of the confidence interval is dependent on the number of events occurring and the size of the population from which the events came. Generally speaking, rates based on small numbers of events and small populations are likely to have wider confidence intervals. Conversely, rates based on large populations are likely to have narrower confidence intervals.

In the PHOF reporting tool we use 95 per cent confidence intervals. This represents a range of values that we can be 95 per cent confident contains the 'true' underlying rate.

Comparisons are often made between two or more estimates, for example between different areas or time periods (Figure 1). Sometimes in such cases statistical testing is undertaken by comparing the confidence intervals of the estimates to see if they overlap. Non-overlapping confidence intervals are considered as statistically significantly different (Figures 1a & 1b). Whilst it is safe to assume that non-overlapping confidence intervals indicate a statistically significant difference, it is not always the case that overlapping confidence intervals do not (Figure 1c). A more exact approach is to calculate the ratio of the two estimates, or the difference between them, and construct a test or confidence interval based on that statistic. Such methods are not covered in this technical guide, but can be found in a standard textbook.

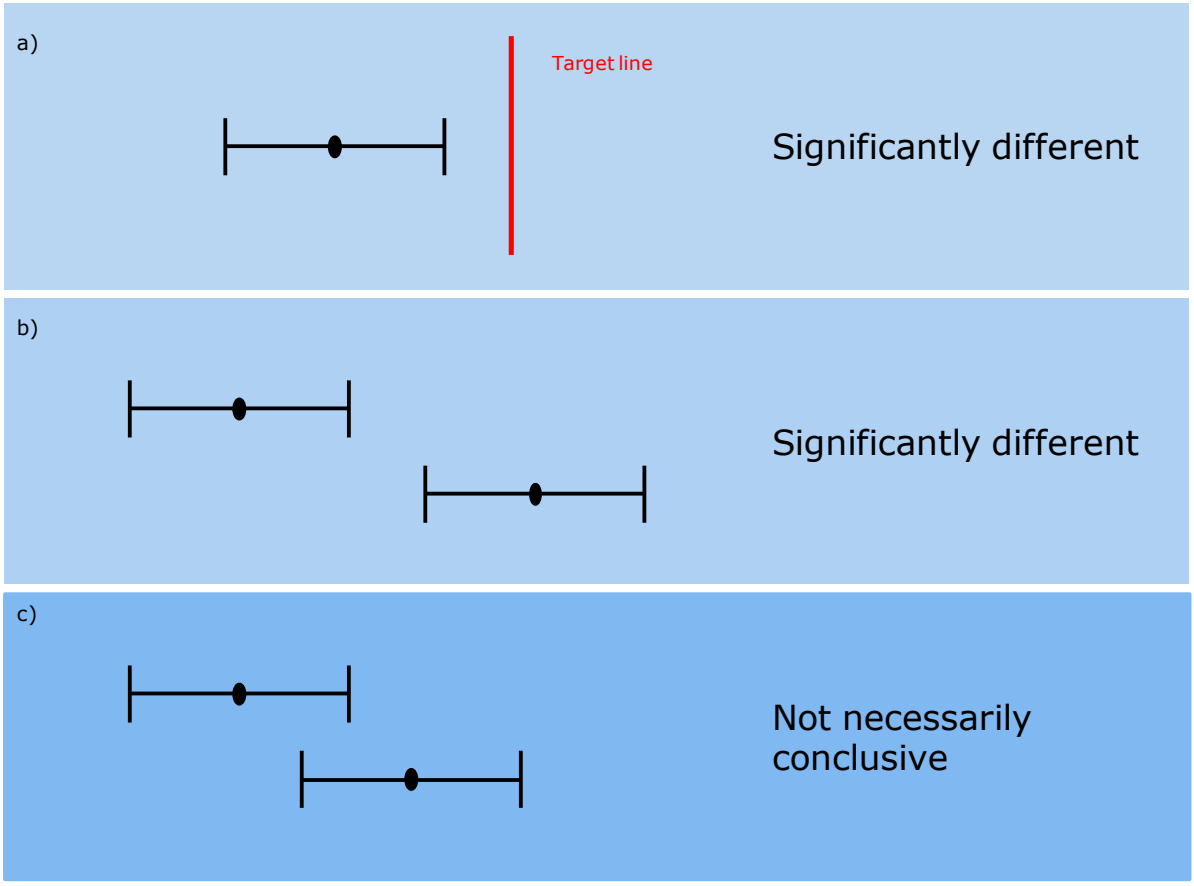

Figure 1. Using confidence intervals for making comparisons
a) & b) Non- overlapping confidence intervals are considered as statistically significant
c) Overlapping confidence intervals do not always indicate a difference that is not statistically significant

3.4 How to interpret local and national deprivation fifths

The analysis considering the gap in life expectancy examines differences in health outcomes between those living in the most deprived and those living in the least deprived areas. A

measure of deprivation for each individual would be the ideal. In the absence of suitable individual level socio-economic data, an area-based deprivation measure is used: The Welsh Index of Multiple Deprivation (WIMD) 2014. As with all area-based measures, it must be noted that not everyone living in a deprived area is necessarily living in deprived circumstances and, equally, some people living in an area classed as least deprived may experience deprivation. Mortality analyses use the residence at the time of death and the associated deprivation fifth which may not necessarily be the area or deprivation fifth where individuals have grown up or lived for most of their lives.

As WIMD data is not directly comparable between releases, the latest available release at the time, WIMD 2014, was used for all of the analyses. The trend in outcomes, therefore, does not take into account any potential change in deprivation level over time. This means that the analysis is covering the trend in time for fixed areas that have a fixed deprivation fifth.

For the Wales-level analysis, all Lower Super Output Areas (LSOAs) in Wales were grouped into fifths according to their published rank. These deprivation fifths are commonly used. For the health board and local authority level analysis, however, specific deprivation fifths within each area have been produced, as some areas do not have sufficient numbers of LSOAs in each national fifth. For example, Blaenau Gwent has no LSOAs that are nationally classed as least deprived. This approach is consistent with those used elsewhere in the UK, including in the development of Fair Society Healthy Lives (Marmot) indicators[1] at a local level in England.

Local deprivation fifths for each local authority or health board have been produced by ranking all LSOAs *within* the area and grouping them into fifths, based on the WIMD. These fifths were produced using Stata, a statistical software package. Each local authority and health board therefore has its own local fifths depending on the deprivation distribution *within* that area. The Measuring inequalities (2016) online data file contains charts which demonstrate the range of deprivation within each area, which can be found here:

http://www.publichealthwalesobservatory.wales.nhs.uk/measuring-inequalities-2016-overview

In areas with a greater range of deprivation levels, the inequality gap is inevitably larger than in areas where there is less diversity. Comparisons, therefore, often illustrate the difference in the range of deprivation between areas, rather than how outcomes relate to particular levels of deprivation for those areas.

1. Marmot Review Team. Fair society, healthy lives: strategic review of health inequalities in England post-2010. The Marmot review. London: TSO; 2010. Available at: https://www.gov.uk/dfid-research-outputs/fair-society-healthy-lives-the-marmot-review-strategic-review-of-health-inequalities-in-england-post-2010 [Accessed 15th January 2018].

3.5 How to interpret rural and urban classification

Rural and urban areas were determined using the Office for National Statistics (ONS) 2011 Rural/Urban Classifications (RUC2011). The Rural Urban Classification is an Official Statistic and is used to distinguish rural and urban areas[1]. The Classification defines areas as rural if they fall outside of settlements with more than 10,000 residents. Each LSOA in Wales was assigned to one of the eight classifications described below:

1. Rural town and fringe in a sparse setting
2. Rural town and fringe
3. Rural village and dispersed in a sparse setting
4. Rural village and dispersed

5. Urban minor conurbation
6. Urban city and town
7. Urban major conurbation
8. Urban city and town in a sparse setting

Classifications 1 to 4 have been combined into a 'Rural' category, and classifications 5 to 8 have been combined into an 'Urban' category.

1. Further information about the 2011 Rural Urban Classification available at: https://www.gov.uk/government/statistics/2011-rural-urban-classification [Accessed 15th January 2018].

4. Data sources

4.1 Annual Population Survey

What the data tells you?	• The Annual Population Survey (APS) seeks information on respondents' personal circumstances, including their labour market status and their education and training activity[1].
How are the data collected?	• The APS is a household survey carried out by the Office for National Statistics (ONS). The survey provides rolling four-quarter labour market data for UK countries and regions and also for local areas[1]. • The APS datasets are derived from a sample of approximately 21,000 people of working age across Wales, with a minimum of around 700 people of working age in most local authorities. However, for 16-18 year olds there are around 1,200 respondents in the sample. Similarly for 19-24 year olds there are around 2,000 respondents in the sample[2].
How accurate and complete will the data be? Are there any problems, notes for interpretation or warnings with the data?	• As the data comes from a survey, the results are sample-based estimates and are therefore subject to differing degrees of sampling variability, i.e. the true value for any measure lies in a differing range about the estimated value[2]. • Further information about the quality of the APS can be found here: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/labourforcesurveyuserguidance
Who manages the data?	Office for National Statistics (ONS)
Where can you get hold of the data?	• Quarterly data are published on StatsWales and a report is published annually: https://statswales.gov.wales/Catalogue/Business-Economy-and-Labour-Market/People-and-Work/Labour-Market-Summary • Data can also be extracted from Nomis: https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=17
References	1. Annual Population Survey (APS) available at: https://gov.wales/annual-population-survey [Accessed 20th March 2019] 2. Welsh Government. Young people not in education, employment or training (NEET) 2019. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-08/young-people-not-in-education-employment-or-training-neet-2018-to-2019-649.pdf [Accessed 25th November 2019]

4.2 Health Behaviour in School-aged Children

What the data tells you?	The Health Behaviour in School-aged Children (HBSC) survey provides an in-depth understanding of young people's health and well-being, including the social determinants of health. The HBSC research network is an international alliance of researchers that collaborate on the cross-national survey of school students[1]. The School Health Research Network's (SHRN) Student Health and Wellbeing Survey is based on the HBSC Survey but is conducted every two years. It provides timely health and wellbeing data for stakeholders in Wales, while providing a data collection infrastructure into which the international HBSC Survey can be embedded every four years[2].
How are the data collected?	• The HBSC is a survey that collects data every four years on secondary school children (in school years 7 to 11) in Wales. 2017/18 was the first time the HBSC Survey in Wales had been delivered electronically, so its methodology is different to previous HBSC Surveys in Wales[2]. • The survey was administered by schools themselves, rather than by research fieldworkers who in previous years visited schools to undertake data collection. • Fieldwork for the study was conducted between November 2017 and March 2018[2]. • Sampling for HBSC schools was undertaken in May 2017 using the SHRN membership at the time (n=203) plus independent schools with at least 150 students in years 7 to 11 that were not already members of SHRN (n=10). A disproportionate design was used that expected to achieve a minimum of 8.5 schools per LHB, using an 85% response rate. The sampling frame was stratified by local health board and within local health boards by deciles of percentage of pupils eligible for free school meals. • On entering the questionnaire, students were randomly allocated to a route, which determined which questions were visible to them as they progressed through the questionnaire. Students in HBSC schools were allocated to the HBSC route or to one of the other two routes (SHRN1 and SHRN2) on a 3:1:1 basis. Students in non-HBSC schools were allocated to SHRN1 or SHRN2 on a 1:1 basis. Final samples sizes within the three routes through the survey were 29,063 (HBSC), 37,363 (SHRN1) and 37,545 (SHRN2).
How accurate and complete will the data be? Are there any problems, notes for interpretation or warnings with the data?	• The sample for this survey is very large allowing us to report with some confidence on the behaviours of pupils by different affluence levels, local authorities, health boards and sex[2]. • Schools were encouraged to include all students in year groups 7 to 11 and to always survey mixed ability classes[2]. Two hundred and sixteen schools were invited to take part in the survey (210 SHRN member schools and 6 independent schools drawn for the HBSC sample) and 193 (89%) did so. There were 103,971 student participants from a total student body of 142,631 in the 193 schools (a 73% response rate), so the overall response rate was 65%. Student participation and response rates by year group are available in the SHRN national report, showing similar response rates from years 7 to 9, but a marked drop thereafter[2]. There may be some systematic bias as pupils who were absent on the day of the survey were not followed up.

Who manages the data?	Health Behaviour in School-aged Children and School Health Research Network Student Health and Wellbeing Survey is conducted by DECIPHer within Caridff University http://www.shrn.org.uk/
Where can you get hold of the data?	Data contact: School Health Research Network Email: SHRN@cardiff.ac.uk
References	1. Health Behaviour in School-aged Children (HBSC): http://www.hbsc.org/about/index.html [Accessed 15th January 2018] 2. Student Health and Wellbeing In Wales: Report of the 2017/18 Health Behaviour in School-aged Children Survey and School Health Research Network Student Health and Wellbeing Survey: http://www.shrn.org.uk/wp-content/uploads/2019/05/SHRN-HBSC-NR_31.05.2019.pdf [Accessed 29th October 2019]

4.3 Mid-year population estimates

What the data tells you?	Mid-year population estimates provide an estimate of the resident population of an area (as at 30th June each year).
How are the data collected?	Population estimates are based on births, deaths and an estimate of migration since the last Census. They are produced using a well-established demographic approach called the cohort component method by the Office for National Statistics (ONS). In simple terms, population estimates are calculated by: - Taking the previous years' population estimate. - Taking out special population groups. - Ageing every person on one year. - Adding births and subtracting deaths. - Allowing for inward and outward migration. - Adding back in the special population groups.
How accurate and complete will the data be? Are there any problems, notes for interpretation or warnings with the data?	• Population estimates are based on Census 2011 data which is the most complete source of information about the population available. • The estimated resident population of an area includes all people who usually live there, whatever their nationality[1]. • Members of the UK and non-UK armed forces stationed in the UK are included[1]. • UK forces stationed outside the UK are excluded[1]. • Students are taken to be resident at their term time address[1]. • The estimates include long term international migrants (defined as somebody who changes his or her country of usual residence for a period of at least one year) [1]. • The estimates do not include short term migrants (people who come to or leave the UK for less than a year) [1]. • The Census and therefore mid-year population estimates are thought to underestimate the population in some areas e.g. areas of multi-occupancy housing.

	• It has recently come to light that the population aged 85+ has been underestimated in some areas by the Office for National Statistics population estimates. In most parts of Wales the impact of this issue will be small. Further details of the impact of the issues are available in this brief paper. • Full guidance on the methodology used by ONS to calculate population estimates can be accessed at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/methodologyguideformid2015ukpopulationestimatesenglandandwalesjune2016
Who manages the data?	Office for National Statistics (ONS)
Where can you get hold of the data?	ONS website available at: http://www.ons.gov.uk/ons/taxonomy/index.html?nscl=Population+Estimates
References	1. Office for National Statistics. *Population estimates for the UK mid-2018; methods guide* [Online]. 2019. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/methodologies/methodologyguideformid2015ukpopulationestimatesenglandandwalesjune2016 [Accessed 20th November 2019].

4.4 National Community Child Health Database

What the data tells you?	The National Community Child Health Database (NCCHD) includes details relating to maternal and child health related indicators such as births, immunisation screening, safeguarding children and breastfeeding.
How are the data collected?	Each of the seven health boards in Wales has a Child Health System database which they manage locally. Anonymised records for all children born, resident or treated in Wales and born after 1987 are collated from each of the local databases each quarter to create the NCCHD[1,2].
How accurate and complete will the data be? Are there any problems, notes for interpretation or warnings with the data?	• The NCCHD birth figures are not meant to replace the Office for National Statistics (ONS) birth registration statistics which are the official births statistics for Wales. The NCCHD is usually used when the information are not available from the ONS dataset e.g. breastfeeding, gestation and vaccination coverage[2]. • The statistics relate to live births born to Welsh residents during the relevant calendar year. The analyses are for live births only and do not include stillbirths. However, births occurring in Wales (whether to Welsh or non-Welsh residents) can also be counted by the NCCHD[2]. • Some key indicators are not useable from this source, primarily due to issues with completeness e.g. details of delivery (e.g. onset of labour, method of delivery) and mothers' characteristics (e.g. whether the mother smokes at 36 weeks) are incomplete for some areas. The NHS Wales Informatics Service (NWIS) are working with the health boards to try to resolve this issue[2]. • The NCCHD is refreshed from local reports and so relies on notifications of immunisations given being returned to local Child Health Offices and entered onto their database.

	• Coverage data is calculated on the basis of area of residence. Some children may reside within one health board area, but may receive immunisations from GPs or school nursing services in neighbouring areas. This should be kept in mind when interpreting coverage statistics.
Who manages the data?	NHS Wales Informatics Service (NWIS)
Where can you get hold of the data?	• Data from the NCCHD are published via Welsh Government[1]. • Immunisation statistics which are calculated using NCCHD are published on the Public Health Wales Health Protection website: https://phw.nhs.wales/topics/immunisation-and-vaccines/#data
References	1. Welsh Government. Births in Wales, 2006-2016: Data from the National Community Child Health Database. Cardiff: Welsh Government; 2017. Available at: https://gov.wales/births-data-national-community-child-health-database-2017 [Accessed 20th March 2019] 2. Welsh Government. Birth Statistics from the National Community Child Health Database (NCCHD) Quality Report. 2013. Available at: https://gov.wales/sites/default/files/statistics-and-research/2018-11/birth-data-national-community-child-health-database-quality-report.pdf [Accessed 20th March 2019]

4.5 National Survey for Wales

What the data tells you?	The National Survey for Wales (NSW) provides key evidence on people's views and well-being to inform and shape decision-making by public bodies in Wales[1].
How are the data collected?	• The National Survey is in its third year. It is conducted by the Welsh Government (WG), succeeding five surveys previously commissioned by WG and three of its sponsored bodies (Natural Resources Wales, Sport Wales, Arts Council of Wales)[2]. The surveys brought together are: - National Survey (2012-15) - Welsh Health Survey - Active Adults Survey - Arts in Wales Survey - Welsh Outdoor Recreation Survey • All three years have been carried out by the Office for National Statistics (ONS), running in financial years 2016/17, 2017/18 and 2018/19. They involved conducting interviews of people aged 16 and over based on a randomly-selected sample of residential addresses across Wales. There were 10,493 interviews in 2016/17, 11,381 in 2017/18 and 11,922 in 2018/19. • 45 minute face-to-face interviews were carried out with a randomly-selected adult (aged 16+) in each randomly-selected household by ONS trained interviewers using portable computers. • It is based on a representative sample of people living in private households in Wales, selected using a random sample from the Post Office's Postcode Address File. This method also ensures that no household would be selected for the NSW that had previously been selected for any large scale Office for National Statistics (ONS) surveys within the last three years[1]. • Addresses were drawn from the Post Office small users Postcode Address File. In 2016/17 a total sample of 21,000 addresses

	were drawn, with an additional boost sample in areas where response was lower than predicted. In 2017/18 a total sample of 23,517 addresses were drawn and in 2018/19 a total sample of 24,762 addresses. The sample was stratified by the 22 Welsh local authorities (LAs) with survey effort approximately proportional to the LA population size with oversampling to ensure a minimum effective sample size of 250 in smaller LAs and a minimum effective sample size of 750 in Powys. In 2016/17 the number of interviews achieved in each LA over the whole survey year ranged from 336 in the Vale of Glamorgan to 734 in Cardiff with the exception of Powys, where 1,212 successful interviews were recorded over the year. In 2017/18 the number of interviews ranged from 310 in Isle of Anglesey to 1,169 in Cardiff. In Powys, 1,043 interviews were recorded over the year. In 2018/19, the number of interviews ranged from 312 in Isle of Anglesey to 1,057 in Cardiff, with 1,394 interviews recorded in Powys over the year. • The 2016/17 survey consisted of a total of 66 main modules plus the additional module. These were designed to cover the range of topics specified by WG and its sponsored bodies such as: - health (e.g. diet, alcohol consumption, smoking, and physical activity); - child health, childcare, and education; - sports participation; - use of and satisfaction with public services; - finances and poverty; - wellbeing and loneliness; - internet access and use; and - environment. • The 2017/18 survey consisted of a total of 63 main modules plus the additional module. These were designed to cover the range of topics specified by WG and its sponsored bodies such as: - health (e.g. diet, alcohol consumption, smoking, and physical activity); - child health, childcare, and education; - sports participation; - use of and satisfaction with public services; - income, housing costs, finances and poverty; - wellbeing and loneliness; - internet access and use; and - tax devolution • The 2018/19 survey consisted of 73 main modules, designed to cover a range of topics specified by WG and its sponsored bodies such as: - health (e.g. diet, alcohol consumption, smoking, and physical activity); - childcare, and child education; - climate change and environmental action; - visits to the outdoors, participation in arts events, and sports activities; - use of and satisfaction with public services; - material deprivation and income; - wellbeing and loneliness; - use of and attitudes towards the use of Welsh language; - internet access and use; and - tax devolution.

How accurate and complete will the data be? Are there any problems, notes for interpretation or warnings with the data?	• Where possible the 2016/17, 2017/18 and 2018/19 data has been combined to provide a larger sample size. Analyses are weighted to account for this. • A large randomly selected sample allows analysis by population sub-groups and local authority areas and for the results to be as representative as possible of the people in Wales, including harder-to-reach groups such as younger working people[1]. • The survey is carried out face-to-face. This has a range of advantages in addition to contributing to the high response rate. For example, it helps ensure that all relevant questions are answered. It also allows interviewers to read out introductions to questions and help ensure respondents understand what is being asked, so that they can give accurate answers. • The overall response rate achieved for 2016/17 was 55 per cent. The target response rate in 2016/17 was 59 per cent[1]. In 2017/18 the planned response rate was 59%, with the final response rate of 54.5%[2]. The planned response rate for 2018/19 was 56%, achieving a final response rate of 54.2%[3]. Although the response rate is reasonably good, there is still a substantial proportion of sampled individuals who do not take part. This is likely to affect the accuracy of the estimates produced[2]. • The survey does not cover people living in institutional establishments (e.g. care homes, residential youth offender homes, hostels, and student halls). • As the survey is based on self-reported data, the results are prone to respondent bias i.e. people may under or overestimate their behaviour to give a more favourable response. • Robust analyses for small areas (i.e. sub-local authority level) and groups are not possible without combining two or more years' worth of data, or making use of small area estimation techniques[4]. • The survey results are weighted to ensure that the age and sex distribution of the responding sample matches that of the population of Wales. • In 2016, a report on discontinuities was commissioned to investigate whether the new survey would produce results that are comparable with the previous surveys, and so provide information on what the change means for understanding trends over time. The project compared key results from a large-scale test of the new National Survey (carried out in summer 2015) with results for the same topics from the predecessor surveys, and any large differences were identified as potential discontinuities[5]. • The new survey is longer than its predecessor surveys, and is carried out using a methodology which is different from that for some of the predecessors. The differences in the method used for the new survey compared with the previous surveys can lead to differences in the estimates. Some of the possible ways this can happen are through changes in the mode (the new survey is all interviewer-led), through other questionnaire differences such as question order effects, and through fatigue effects from the longer questionnaire. • This project did not find any discontinuities between the variables selected from the previous design of the National Survey for Wales (from 2012-15) and the new survey. However, discontinuities were identified for some variables from the Welsh Health Survey, Active Adults Survey, Arts in Wales Survey and the Welsh Outdoor

	Recreation Survey. Where discontinuities were identified, these generally suggested that for those particular variables the new National Survey will provide lower estimates than did the predecessor surveys. • Comparisons over time are therefore likely to be possible for questions that were included in both the 2012-15 National Survey and the new National Survey. However, care should be taken in making comparisons between results from the new survey and the other pre-existing surveys.
Who manages the data?	The survey is conducted by the Office for National Statistics (ONS) for the Welsh Government (WG).
Where can you get hold of the data?	• National Survey for Wales results are available at: https://gov.wales/national-survey-wales • National Survey for Wales data is also available at: https://statswales.gov.wales/Catalogue/National-Survey-for-Wales
References	1. National Survey for Wales, 2016-17 onwards, Quality Report. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/national-survey-wales-quality-report-2016-17-onwards.pdf [Accessed 20th March 2019] 2. National Survey for Wales, 2017-18, Technical Report. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/national-survey-for-wales-technical-report-2017-18.pdf [Accessed 20th March 2019] 3. National Survey for Wales, 2018-19, Technical Report. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-07/national-survey-for-wales-april-2018-to-march-2019-technical-report_0.pdf [Accessed 25th Nov 2019] 4. National Survey for Wales, 2016-17 Technical Report. June 2017. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/national-survey-for-wales-technical-report-2016-17.pdf Accessed 20th March 2019] 5. Discontinuities in results for health-related lifestyle and general health between the Welsh Health Survey and National Survey for Wales. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/discontinuities-results-health-related-lifestyle-general-health-between-welsh-health-survey-national-survey-wales-2018.pdf [Accessed 25th November 2019]

4.6 Patient Episode Database for Wales

What the data tells you?	The Patient Episode Database for Wales (PEDW) comprises records of all episodes of inpatient and day case activity in NHS Wales hospitals. Hospital activity for Welsh residents treated in other UK nations (primarily England) is also included.
How are the data collected?	• The data is collected and coded at each hospital. The records are then electronically transferred to the NHS Wales Informatics Service (NWIS), where they are validated and merged into the main database. • Diagnoses are coded using the International Classification of Diseases 10th revision (ICD-10). Further details can be accessed: http://www.who.int/classifications/icd/en/index.html

	• Procedures are coded using the OPCS classification of surgical operations. Further details can be found here: http://www.datadictionary.nhs.uk/web_site_content/supporting_information/clinical_coding/opcs_classification_of_interventions_and_procedures.asp?query=OPCS%20&rank=75&shownav=1
How accurate and complete will the data be? Are there any problems, notes for interpretation or warnings with the data?	• The data held in PEDW is of interest to public health services since it can provide information regarding both health service utilisation and also be used as a proxy for incidence and prevalence of disease. However, since PEDW was created to track hospital activity from the point of view of payments for services, rather than epidemiological analysis, the use of PEDW for public health work is not straightforward. For example: – Counts will vary depending on the question being asked, for example, the number of diagnoses fields used i.e. primary diagnosis only or all diagnosis fields will answer different questions around service utilisation or prevalence. – There are a number of different 'currencies' that can be counted in PEDW, such as episodes, admissions, discharges and patients. The choice of currency is dependent on the question being asked. – There are different admission methods, ranging from emergency to elective, or a combination of both. • Coding practices may vary, which can make regional variations more difficult to interpret. The validation process led by the Corporate Health Improvement Programme and implemented by NWIS is aiming to address some of these inconsistencies. • Outpatient activity and attendances to emergency departments are not included in this dataset. • Further information regarding the type of information collected in PEDW can be found via the NHS Wales data dictionary: http://www.datadictionary.wales.nhs.uk/.
Who manages the data?	NHS Wales Informatics Service (NWIS)
Where can you get hold of the data?	• Annual PEDW data tables are published here: http://www.infoandstats.wales.nhs.uk/page.cfm?orgid=869&pid=40977 • Health Maps Wales is an online tool produced by NWIS which presents a range of information, including hospital admissions data from PEDW: http://www.infoandstats.wales.nhs.uk/page.cfm?orgid=869&pid=40976 • Contact details for the NHS Wales Informatics Service can be found on their website: http://www.wales.nhs.uk/sitesplus/956/home

4.7 Public Health Mortality

What the data tells you?	• Public Health Mortality (PHM) is a dataset containing each individual death of a resident that is registered in the particular year. • The information presented in the Public Health Outcomes Framework reporting tool relates to deaths that have been registered between 2005 and 2018.

How are the data collected?	Individual records for death registrations are sent on a weekly basis from the Registrars' offices across England and Wales to the Office for National Statistics (ONS). The ONS collates and validates the data. The data are based on the underlying cause of death e.g. if an individual dies from pneumonia but had been made vulnerable to that disease by end-stage cancer, then cancer (rather than pneumonia) is recorded as the underlying cause of death.
How accurate and complete will the data be? Are there any problems, notes for interpretation or warnings with the data?	• It is a legal requirement to register a death and so PHM provides a reliable and complete data source. • There have been two recent revisions to the manner in which the death certificates are translated by the Office for National Statistics into International Classification of Diseases codes (10th revision). These changes mean that unrevised data are not comparable across years. The main change relates to the rules that govern which cause of death detailed on the death certificate is selected as the underlying cause. Comparability ratios have not been used in these analyses and therefore caution should be exercised when interpreting trends. • Cause of death is based on the medical certificate of cause of death. This is completed by the certifying doctor for about three quarters of deaths and by a coroner for the remainder. Most of the deaths certified by a coroner do not involve an inquest or any suspicion of violence, but are referred to the coroner because they were sudden and unexpected, or because there was no doctor in attendance during the deceased's last illness. There will be a long delay in registering a small number of deaths for which a coroner's ruling is required e.g. suicide, homicide, undetermined intent. • It is important to note that with many thousands of doctors writing certificates, the differences in their training, habits and knowledge mean that there would inevitably be variations in the quality of medical certificates of cause of death[1]. • The cause of death is easier to define in younger people. Older people are far more likely to have many underlying health conditions, making it more difficult to determine the underlying cause of death[2].
Who manages the data?	Office for National Statistics (ONS)
Where can you get hold of the data?	Summary data are available from: • The Office for National Statistics website: https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths
References	1. Office for National Statistics. *Mortality Statistics: Deaths registered in England and Wales, 2018*. Newport: ONS 2019. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/methodologies/mortalitystatisticsinenglandandwalesqmi [Accessed 25th Nov 2019]. 2. Gorina Y, Lentzner H. Multiple Causes of Death in Old Age. *Aging Trends* 2008; 9:1-9. Available at: www.cdc.gov/nchs/data/ahcd/agingtrends/09causes.pdf [Accessed 15th January 2018].

4.8 Welsh Health Survey

What the data tells you?	The Welsh Health Survey (WHS) provides information about the health of people living in Wales, the way they use health services and their health related lifestyle between 2003/04 and 2015.
How are the data collected?	• The WHS is based on a representative sample of adults (aged 16 and over) living in private households in Wales (plus some information for children living in those households). • Private households in Wales are selected using a random sample from the Post Office's Postcode Address File[1]. • The adult survey was established in 2003 and runs all year round. The information relating to children has been collected since 2007. • Families with children aged under 16 are eligible for the child elements of the survey. In households with three or more children, two children are selected at random to avoid respondent burden. Information is collected on households through a short interview and on individuals through a self-completion questionnaire. One of three age-specific questionnaires are used for children. Two are designed for parents to complete on behalf of children aged 0-3 and 4-12. A third questionnaire is given to children aged 13-15 to complete on their own behalf. Adults (aged 16+) complete their own questionnaire. • At each household, all adults and a maximum of two children are eligible for inclusion in the survey. • Each year, a sample of around 15,000 adults and 3,000 children is collected, to include a minimum of 600 adults for each local authority area.
How accurate and complete will the data be? Are there any problems, notes for interpretation or warnings with the data?	• The 2015 WHS was the final year for the survey to report in this form. The survey was one of five surveys brought together by the new National Survey for Wales (NSW) from 2016/17. Discontinuities between the surveys mean that results between the surveys aren't comparable[2]. More information can be found in section 4.5 on the NSW. • The survey is the most comprehensive survey into the health of the population at local authority level across Wales. However, as with all surveys of a sample of the population results are subject to sampling error i.e. the difference between the estimates derived from the sample and the true population values. • The survey achieves high response rates e.g. in 2013, 79 per cent of eligible households took part and self-completion questionnaires were obtained for 79 per cent of adults and 76 per cent of children in participating households. • Survey data is usually presented at a Wales level. Combining data from more than one year improves the precision of the estimate due to the larger sample size. This allows results to be presented at lower levels e.g. age group and smaller geographies. • As the survey is based on self-reported data, the results are prone to respondent bias i.e. people may under or overestimate their behaviour to give a more favourable response. • The survey results are weighted to ensure that the age and sex distribution of the responding sample matches that of the population of Wales.

	• The Postcode Address File covers more than 99 per cent of private households in Wales; the small percentage of people not covered by the Postcode Address File, for example those living in institutions were not covered by the Welsh Health Survey and therefore results do not include adults living in institutional care homes or nursing homes etc. • Non-responding adults were more likely than those who responded to have been described as having good general health. However, the converse is true for children i.e. children who responded to the survey were more likely to be described as having good general health than non-responding children[3].
Who manages the data?	The National Centre for Social Research (NatCen) conducts the survey on behalf of the Welsh Government (www.natcen.ac.uk).
Where can you get hold of the data?	Welsh Health Survey results are available at: https://gov.wales/welsh-health-survey
References	1. Welsh Health Survey technical guide available at: http://gov.wales/docs/statistics/2015/150916-welsh-health-survey-technical-report-2014-en.pdf [Accessed 15th January 2018] 2. Discontinuities in results for health-related lifestyle and general health between the Welsh Health Survey and National Survey for Wales. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/discontinuities-results-health-related-lifestyle-general-health-between-welsh-health-survey-national-survey-wales-2018.pdf [Accessed 25th November 2019] 3. Sadler et al. Welsh Health Survey 2011 Technical Report. National Centre for Social Research; 2012. Available at: http://gov.wales/docs/statistics/2012/120919technicalreporten.pdf [Accessed 15th January 2018]

4.9 Welsh Index of Multiple Deprivation

What the data tells you?	• The Welsh Index of Multiple Deprivation (WIMD) 2014 is a measure of multiple deprivation at small area level. The fifth edition of the WIMD was released in August 2014 and replaced WIMD 2011. WIMD is made up of eight separate domains of deprivation: income; employment; health; education; housing; access to services; environment; and community safety[1]. • WIMD is used to give an overall deprivation rank for each of the 1,909 Lower Super Output Areas (LSOA) in Wales and to give ranks for the separate deprivation domains for each of the LSOAs.
How are the data collected?	• Deprivation ranks are calculated for each LSOA in Wales. One area has a higher deprivation rank than another if the proportion of people living there that are classed as deprived is higher. The most deprived area is ranked as one and the least deprived area is ranked as 1,909. • Each of the eight domains are based on a range of different indicators. The domain indices are weighted and combined into an overall index of multiple deprivation. The weighting is the adjustment of the contribution the domain indices make to the

	overall index when they are combined. Income and employment are classed as the most important indicators and are given the biggest weighting in the overall index. • To obtain deprivation fifths geographical areas are ranked from highest to lowest by the deprivation rank and then split into five bands of similar size, ranging from least deprived to most deprived fifth.
How accurate and complete will the data be? Are there any problems, notes for interpretation or warnings with the data?	• The WIMD provides a deprivation rank for each of the 1,909 LSOAs in Wales. • Not everyone living in a deprived area is deprived and not all deprived people live in deprived areas. An area itself is not deprived, it is the circumstances and lifestyle of people who are living there that affects its deprivation ranks. • The WIMD cannot illustrate how much more deprived one LSOA is than another. If one area is ranked as the 100th most deprived and another area as the 300th most deprived, it doesn't mean that one area is three times more deprived than the other. • Deprivation ranks cannot be compared with scores from a previous index. • The WIMD ranks cannot be compared with those from deprivation indices of other UK countries. • There are no official health board and local authority fifths. • WIMD is an ecological measure whereas individuals within an area (LSOA in this instance) may vary. • The overall WIMD index includes a health measure and so it can be argued that assessing health experiences against WIMD can have a circular effect. • Unlike measures of material deprivation some of the factors do not relate directly to material deprivation e.g. access to services. • It is important to note that low deprivation does not equate to affluence.
Who manages the data?	Welsh Government's Statistical Directorate and the Local Government Data Unit (Wales)
Where can you get hold of the data?	https://gov.wales/welsh-index-multiple-deprivation [Accessed 20th March 2019]
References	1. Welsh Government. *Welsh Index of Multiple Deprivation 2014 Guidance on use*. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-01/141112-wimd-2014-guidance-en.pdf [Accessed 9th December 2019]

4.10 Foundation Phase Framework

What the data tells you?	• Since 2016, children in Wales undergo a statutory on-entry assessment, using the Foundation Phase Profile, during their first 6 weeks following entry into primary school (Reception Class). This is used to determine the stage of development and interests of the child according to the Foundation Phase Profile and framework. Most assessments are undertaken when the child enters reception class at age 4, although schools are encouraged to assess the child

	on entry to the Foundation Phase, at whatever earlier age that may be. The key use of this data is as a formative tool to help practitioners to understand the child's learning style and interests as well as their developmental stage. • The on-entry assessments are part of the overall Foundation Phase, which has brought together what was previously known as the Early Years (from 3 to 5 year olds) and Key Stage 1 (from 5 to 7-year-olds) of the National Curriculum to create one phase of education for all children aged between three and seven.
How are the data collected?	• The on-entry assessments are made up of pupil-level data collected electronically from maintained schools, care of their local authority (LA). All collections are carried out by Knowledge and Analytical Services within the Welsh Government. • These assessments are based upon a series of unobtrusive observations of each child following their entry into Reception class. Four areas of learning are observed: Language, Literacy and Communication skills (in either Welsh or English); Mathematical Development; Physical Development; Personal and Social Development, Well-Being and Cultural Diversity. This approach helps practitioners to understand the child's learning style and interests as well as their developmental stage.
How accurate and complete will the data be? Are there any problems, notes for interpretation or warnings with the data?	• Data are not collected from independent schools because the Foundation Phase is not statutory for those schools. • The Welsh Government works closely with schools and local authorities in order to ensure all data are validated before tables are published. Data are collated into an electronic return and submitted to the Welsh Government through the Data Exchange Wales initiative (DEWi), a secure online data transfer system developed by the Welsh Government. Various stages of automated validation and sense-checking are built into the process to ensure a high quality of data. • The data reflect the wide range of developmental maturity that we expect at this age, and is well within the normal range for children at entry to school, especially with the age variability at the point of school entry. The general expectation is that the majority of four year olds will be assessed at stage of development 2, with significant numbers also expected at stages 1 and 3 in each area of learning. Further information can be found on page 12 of the Foundation Phase Profile Handbook.
Who manages the data?	Welsh Government's Statistical Directorate and the Local Government Data Unit (Wales)
Where can you get hold of the data?	https://gov.wales/foundation-phase-framework?_ga=2.14237431.1917132201.1563438772-1293971632.1563438772 (Accessed 18/07/2019)
References	

5. Indicators

5.1 Overarching outcomes

5.1.1. Life expectancy at birth

What is being measured?	Life Expectancy at birth
How is this indicator defined?	An estimate of the average number of years that newborn babies could expect to live, assuming that current mortality rates for the area in which they were born applied throughout their lives.
Where does the data actually come from?	• Public Health Mortality (PHM), Office for National Statistics (ONS) • Population mid-year estimates by Lower Super Output Area (LSOA) and single year of age (unrounded), ONS • Welsh Index of Multiple Deprivation (WIMD) 2014, Welsh Government (WG) • Rural/urban classifications (2011), ONS
Who does it measure?	Males and females
When does it measure it?	• Trend: Health boards, local authorities: 2006-08 to 2015-17 (calendar years) • Health boards, local authorities, Upper Super Output Areas (USOAs): 2015 – 2017 (calendar years) • Middle Super Output Areas (MSOAs): 2013 – 2017 (calendar years) • National characteristics: 2015 – 2017 (calendar years)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities, USOAs, MSOAs. • Rural and urban areas in Wales. • National deprivation fifths (WIMD).
How is it calculated?	• Life expectancy was calculated using the preferred method of the ONS for calculating life expectancy at birth for small areas, as described by Eayres & Williams[1] and Toson & Baker[2]. • This method has been shown to be sufficiently reliable for populations larger than 5,000. • It utilises population estimates and mortality data to calculate a life table, from which the probability of surviving each 5-year age group, given that the previous age group has been survived, is calculated. It estimates the average number of years of life expected for any particular age. In this report only the average number of years of life expected from birth is presented. • 95 per cent confidence intervals, following the method in the South East Public Health observatory (SEPHO) life expectancy calculator described in Eayres D.P. & Williams E.S. (2004)[1].

	• Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[3]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• As all life expectancy calculations are based on current mortality rates, which have been improving for decades, average life expectancy will change over the course of a lifetime irrespective of other factors. These should therefore be considered as comparative population measures of mortality during a period of time rather than as predictions of actual individual life expectancy. • The registration of death is a legal requirement in the UK, so the dataset should be a near complete record of mortality (further notes on the interpretation of PHM are available in the data source guide – section 4.7). • Data are aggregated from LSOA level to the MSOA, USOA, local authority, health board or national level. This means records without a valid LSOA are excluded from the analysis and figures from this analysis may not match exactly to other data sources where data are aggregated at a higher level. • Further information regarding life expectancies in Wales can be found in the Measuring inequalities (2016) products: http://www.publichealthwalesobservatory.wales.nhs.uk/measuring-inequalities-2016-overview • Further information regarding how to interpret life expectancy at birth please see section 3.1.
References	1. Eayres D.P. & Williams E.S., Evaluation of methodologies for small area life expectancy estimation, *J Epidemiol Community Health.* 2004;58:243-249. 2. Toson B. & Baker A. *Life expectancy at birth: methodological options for small populations. National Statistics Methodological series no. 33*. ONS: 2003. Available at: https://webarchive.nationalarchives.gov.uk/20160107223300/http://www.ons.gov.uk/ons/guide-method/method-quality/specific/gss-methodology-series/gss-methodology-series--33--life-expectancy-at-birth--methodological-options-for-small-populations.pdf [Accessed 28th February 2019]. 3. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018]

5.1.2. Healthy life expectancy at birth

What is being measured?	**Healthy Life Expectancy (HLE) at birth**
How is this indicator defined?	An estimate of the average number of years that newborn babies could expect to live in good health, assuming that current mortality

	rates and levels of good health for the area in which they were born applied throughout their lives.
Where does the data actually come from?	• Public Health Mortality (PHM), Office for National Statistics (ONS) • Population mid-year estimates by Lower Super Output Area (LSOA) and single year of age (unrounded), ONS • Annual Population Survey, Office for National Statistics (ONS)
Who does it measure?	Males and females
When does it measure it?	2015 – 2017 (calendar years)
What geographical area does it cover?	• Wales, Welsh health boards (pre-April 2019 boundaries), Welsh local authorities
How is it calculated?	• HLE was calculated using the Sullivan method which is the preferred method of the ONS for calculating healthy life expectancy at birth[1,2]. • Its calculation involved combining health status data from the APS and Census with the mortality and population data used for life expectancy. • The health states were based on the APS question asking those aged between 16 and 85 "How is your health in general; would you say it was … Very Good, Good, Fair, Bad, Very Bad". 'Healthy' was judged to be a response of very good or good. • Census data for children under 16 years and adults over the age of 85 was used with adjustments to calculate good health prevalence, more information on this method can be found here: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/methodologies/methodchangestolifeandhealthstateexpectancies. • The results are reported with 95 per cent confidence intervals using the Sullivan method, proposed by Jagger[1]. • Further information regarding calculating healthy life expectancies can be found here: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/methodologies/healthstatelifeexpectanciesukqmi#methods-used-to-produce-the-data
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Previously, HLE was calculated using health status data from the WHS. The WHS questions asked those aged 16 and over "In general would you say your health is? Excellent, Very Good, Good, Fair, Poor" and asking a parent or guardian "How is the child's health in general? Very good, good, fair, bad, very bad". 'Healthy' was judged to be a response of excellent, very good or good for adults and very good or good for children. • The effect of using a different survey with different categorisation of good health has resulted in a decrease in HLE compared to previously published data. • As all life expectancy calculations are based on current mortality rates, which have been improving for decades, average HLE will change over the course of a lifetime irrespective of other factors.

	These should therefore be considered as comparative population measures of mortality and health status during a period of time rather than as predictions of actual individual HLE. • The 95 per cent confidence interval is an indication of the extent of random variation that could reasonably be expected and must be considered during assessment and interpretation of any estimate. A narrow interval is suggestive of the estimate being closer to the real unknown value. The width of a confidence interval is partly dependent on the size of the population from which the events came and also on the sample size of the APS data per area. Estimates based on small populations and small APS sample sizes are likely to have wider confidence intervals, and estimates based on large populations and larger sample sizes are likely to have narrower confidence intervals. • The APS data is self-reported and may be affected by individuals' perception of their own health. • The APS survey does not include data for those under 16 or over 85, therefore previous census data is also used alongside this to calculate the HLE for older and younger persons. More information about the accuracy of the calculation and adjustments can be found here: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/methodologies/methodchangestolifeandhealthstateexpectancies • The Sullivan method includes an adjustment for people living in communal establishments. As there were no reliable and timely data available, this adjustment was not made in this analysis. • Additional issues relating to mortality data and population data that are common to all types of life expectancy indicators are highlighted in the life expectancy indicator. Further notes on the interpretation of PHM and notes on the APS are available in the data source guides (sections 4.7 and 4.1 respectively). • Further information regarding how to interpret healthy life expectancy at birth please see section 3.2.
References	1. Jagger, C. Health Expectancy Calculation by the Sullivan Method: A Practical Guide*. NUPRI Research Paper Series.* 1999; No 68. Tokyo. 2. ONS. *Health expectancies at birth and at age 65, United Kingdom, 2013–15*. 2016. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/datasets/healthstatelifeexpectancyatbirthandatage65bylocalareasuk [Accessed 21st August 2017]

5.1.3. Mental well-being among children and young people (NI)

Indicator name	**Mental well-being among children and young people**
Notes	Data are not currently available at the sub-Wales level. This is a national indicator. For further details on mental well-being in children and young people see https://statswales.gov.wales/v/CVu5

5.1.4. Mental well-being among adults (NI)

What is being measured?	Mental well-being among adults
How is this indicator defined?	• The age-standardised and age-specific average metal health score of adults (aged 16 or over) • This is a national indicator.
Where does the data actually come from?	• National survey for Wales (NSW), Welsh Government (WG) • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications, 2011 Office for National Statistics (ONS)
Who does it measure?	• Persons, males and females (aged 16 and over) • Selected age groups (persons only): - 16-44 - 16-64 - 45-64 - 65-84 - 65+ - 85+ • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).
When does it measure it?	2018/19 (financial year)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• The Warwick-Edinburgh Mental Well-being Scale[1] (WEMWBS) was used to assess mental well-being. Lower scores indicate lower mental wellbeing and higher scores suggest higher mental wellbeing. • The average score and 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[2]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4. • Age-standardised percentages were calculated using aggregated weightings from the 2013 European Standard Population[3] for those respondents who were aged 16 and over who responded to the average mental health score question • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This

	analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-10) codes. This is the same question as that used in the 2011 Census.

How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• WEMWBS consists of 14 statements and asks respondents how often they felt this way on a five-point scale, where 1 is 'none of the time' and 5 is 'all of the time'. A score from 14 to 70 is then subsequently calculated.
	• The 14 statements are:
	  ○ I've been feeling optimistic about the future
	  ○ I've been feeling useful
	  ○ I've been feeling relaxed
	  ○ I've been feeling interested in other people
	  ○ I've had energy to spare
	  ○ I've been dealing with problems well
	  ○ I've been thinking clearly
	  ○ I've been feeling good about myself
	  ○ I've been feeling close to other people
	  ○ I've been feeling confident
	  ○ I've been able to make up my own mind about things
	  ○ I've been feeling loved
	  ○ I've been interested in new things
	  ○ I've been feeling cheerful
	• The WEMWBS is a scale that measures mental wellbeing (as opposed to mental illness or disorder) and is suitable for use in the general population. Its strengths are that it is positively worded, represents positive attributes of wellbeing and covers both feeling and functioning[1].
	• WEMWBS was not designed as a screening instrument to detect mental illness and is not recommended for use in this context[1].
	• WEMWBS scores have been benchmarked against Centre for Epidemiological Studies Depression Scale[4], Edinburgh Postnatal Depression Scale[5], the Patient Health Questionnaire[6] and against the Association of University and College Counselling Scale[7]. Correlations with all these scales are high, but precise equivalent cut points are difficult to define.
	• The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability.
	• Further information about the NSW can be found in the data source guide in section 4.5.

References	1. Warwick-Edinburgh Mental Wellbeing Scale. Available at: http://www.warwick.ac.uk/fac/med/research/platform/wemwbs/ [Accessed 25th August 2017] 2. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018]

	3. Revised European Standard Population 2013. Available at: http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/revised-european-standard-population-2013--2013-esp-/index.html [Accessed 16th January 2018] 4. Radloff, L. The CES-D scale A self-report depression scale for research in the general population. *Applied Psychological Measurement*.1997; 1: 385-401. 5. Cox J, H. J., Sagovsky R. Detection of post natal depression. Development of the 10 items EPDS. *Br. J. Psychiatry.* 1987; 150: 782-786. 6. Kroenke, K., et al. The PHQ-9. *Journal of General Internal Medicine*. 2001 16(9): 606-613. 7. Association of University and College Counselling Scale (2009).

5.1.5. The gap in life expectancy at birth between the most and least deprived

What is being measured?	**The gap in life expectancy at birth**
How is this indicator defined?	• A measure of the absolute difference in years of life expectancy at birth between the least and most deprived areas.
Where does the data actually come from?	See section 5.1.1 for life expectancy at birth; proportion of population share for weighting from Mid-year Population Estimates (MYEs) Office for National Statistics (ONS), Welsh Index of Multiple Deprivation (WIMD) 2014 Welsh Government (WG)
Who does it measure?	Males, females
When does it measure it?	2015 - 2017 (calendar years)
What geographical area does it cover?	Wales, Welsh health boards, Welsh local authorities
How is it calculated?	• This indicator is calculated by taking the absolute difference in years of life expectancy at birth between the least and most deprived areas. • Lower Super Output Areas (LSOAs) were ranked within each area (local authority or health board) and grouped into fifths of deprivation according to their WIMD (overall) rank. For Wales the national deprivation fifths were used as issued. This means that where areas are compared, the difference in deprivation distribution will need to be considered. • 95 per cent confidence intervals are calculated around the absolute difference following a method proposed in Altman D.G. et al (2000) *Statistics with Confidence (2nd edn)* BMJ Books: UK (page 29).
How accurate and complete will the data be for this indicator? Are there	• Gap in life expectancy based on estimates of life expectancy at birth by fifths (see section 5.1.1 for details). • This indicator was previously measured using the Slope Index of Inequality (SII). The SII was calculated following the methods published by Low & Low[1]. This method is a measure of the

any problems, notes for interpretation or warnings with the data in relation to this indicator?	absolute difference in years of life expectancy at birth between the least and most deprived areas, whilst also taking into account the distribution across all deprivation fifths. This statistical approach assumes that data exhibit a linear relationship, i.e. a diagonal straight line could roughly be drawn across the values by increasing deprivation fifth. • Results produced using both the current method and the SII aren't comparable. • The latest results using the SII produced by ONS can be found here: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/bulletins/healthstatelifeexpectanciesbyindexofmultipledeprivationimd/2015to2017
References	1. Low A. & Low A. Measuring the gap: quantifying and comparing local health inequalities. *J Public Health*. 2004; 26(4):388-395. 2. Altman D.G. et al. *Statistics with Confidence (2nd edn)*. 2000. BMJ Books: UK (page 29)

5.1.6. The gap in healthy life expectancy at birth between the most and least deprived (NI)

Indicator name	**The gap in Healthy Life Expectancy (HLE) at birth**
Notes	• Data for this indicator will be available in the next update. Previously published data has been removed as we are currently in the process of updating the methodology for this indicator. As such, previously published data won't be comparable. • This is a national indicator.

5.1.7. The gap in mental well-being between the most and least deprived among children and young people

Indicator name	**The gap in mental well-being between the most and least deprived among children and young people**
Notes	• At the time of publication data was unavailable for this indicator. • The Welsh Index of Multiple Deprivation (WIMD) will be used to calculate the gap between the most and least deprived. • For further details on mental well-being in children and young people see https://statswales.gov.wales/v/CVu5

5.1.8. The gap in mental well-being between the most and least deprived among adults

Indicator name	**The gap in mental well-being between the most and least deprived among adults**
Notes	• At the time of publication data was unavailable for this indicator. • For further information on well-being in adults, see section 5.1.4 • The Welsh Index of Multiple Deprivation (WIMD) will be used to calculate the gap between the most and least deprived.

5.2 Living conditions that support and contribute to health now and for the future

5.2.1. Children living in poverty

What is being measured?	Children living in poverty
How is this indicator defined?	Percentage of population in income deprivation. **Note**: the definition used is not the same as the 'Wellbeing of Future Generations (Wales) Act' national indicator
Where does the data actually come from?	Indicator data by Welsh Index of Multiple Deprivation (WIMD), Welsh Government (WG)
Who does it measure?	All persons aged 0-18
When does it measure it?	2017 (calendar year)
What geographical area does it cover?	Wales, Welsh local authorities, MSOAs, LSOAs
How is it calculated?	• The indicator on income is a composite indicator which contains three elements: 1) income-related benefit claimants, 2) tax credit recipients, 3) supported asylum seekers and 4) universal credit claimants[1]. The indicator sums claimants and dependent children for the three elements, then expresses the sum as a percentage of the total residential population for each local authority, based on mid-2014 population estimates. The counts are of unique individuals (i.e. those who claim multiple benefits are only counted once). The indicator is restricted to those aged 0-18 years old. • Wales and local authorities percentages were supplied by Welsh Government: https://statswales.gov.wales/Catalogue/Community-Safety-and-Social-Inclusion/Welsh-Index-of-Multiple-Deprivation/WIMD-Indicator-Data-By-Age/income-by-localauthority. • MSOA and LSOA were supplied by request from the Welsh Government.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• It is not possible to show the Well-being of Future Generations national child poverty indicator at sub-national level. Therefore, the above proxy indicator has been used within this reporting tool. • The national indicator defines children living in poverty as the proportion of children living in households where the income is less than 60 per cent of median household incomes. The definition used in this tool uses the WIMD to define children living in poverty. • WIMD is the Welsh Government's official measure of relative deprivation for small areas in Wales. It is designed to identify those small areas where there are the highest concentrations of several different types of deprivation. As such, WIMD is a measure of multiple deprivation that is both an area-based measure and a measure of relative deprivation[1].

	• In some instances, the number of households in receipt of income related benefits or tax credits may exceed the area population. This is due to changes from the Mid-2012 Small Area Population Estimates used and changes in the population of that small area from this year. This has resulted in some of the percentage of households in receipt of income related benefits or tax credits being larger than 100 per cent. In these cases, the percentage has been capped at 100. • The income indicator is published for every year. There were no methodological changes in the income domain between WIMD 2011 and WIMD 2014. However, changes to the welfare system mean that eligibility thresholds and criteria for some benefits have changed. As a result, indicator data are not strictly comparable over time. • Further information on income deprivation can be found online: http://dera.ioe.ac.uk/28905/1/170413-wimd-indicator-data-guidance-en.pdf • Further information on WIMD 2014 – area analysis of child poverty is available at: http://gov.wales/docs/statistics/2015/151201-wimd-2014-area-analysis-child-deprivation-2014-en.pdf. • Further details regarding the WIMD can be found in the data source guide in section 4.9.
References	1. Welsh Index of Multiple Deprivation: indicator guidance. Available at: https://gov.wales/welsh-index-multiple-deprivation-indicator-guidance [Accessed 27th November 2019]

5.2.2. Young children developing the right skills (NI)

What is being measured?	**Young children developing the right skills**
How is this indicator defined?	• This assessment is based upon a series of unobtrusive observations of each child following their entry into Reception class. The measurement of the development of young children, and progress will be tracked using the Personal, Social Development, Well-Being and Cultural Diversity area of learning. The key use of this data is as a formative tool to help practitioners to understand the child's learning style and interests as well as their developmental stage. • Children are scored between 1 and 6 for how many skills and how developed they are within a set of parameters, more information on how these levels are defined can be found on pages 50-51 of the Curriculum for Wales: Foundation Phase Framework • More information on the Foundation Phase Profile can be found here: https://gov.wales/entry-assessments-pupils-reception-class-september-2017-august-2018 [Accessed 29th July 2019] • This is a national indicator.

Where does the data actually come from?	• Foundation Phase Profile, Welsh Government (WG)
Who does it measure?	• Children in Wales during their first 6 weeks following entry into primary school (Reception Class)
When does it measure it?	• 2017/18 (academic year)
What geographical area does it cover?	• Wales
How is it calculated?	• To indicate the percentage of those children who are 'school ready', the percentage of those children meeting the stages of development from 2 up (2, 3, 4+) have been added together and presented with sex breakdowns. This has been calculated using published data from Welsh Government
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Data are not collected from independent schools because the Foundation Phase is not statutory for those schools. Therefore, data may not be fully representative of the entire Welsh 4 year old population. For all areas of learning there is a different distribution pattern of developmental progress for boys compared with girls as they mature at different rates and on average girls are at a higher stage of development. This is consistent with other studies such as the Millennium Cohort Study and data from the Schedule of Growing Skills collected under the Flying Start programme.
References	Curriculum for Wales: Foundation Phase Framework Available at: https://gov.wales/sites/default/files/publications/2018-02/foundation-phase-framework-revised-2015.pdf] [Accessed 18th July 2019]

5.2.3. School leavers with skills and qualifications (NI)

What is being measured?	**School leavers with skills and qualifications**

How is this indicator defined?	The Average Capped 9 Score is a measure that focuses on Year 11 pupils' best results from nine of the qualifications available in Wales. This measure recognises performance and allocates points across the whole spectrum of grades to reflect attainment levels for all learners in Wales. This includes 5 subject specific attainment requirements and 4 further qualifications: 1. English/Welsh (not literature) 2. Mathematics – numeracy 3. Mathematics 4. 2 x Science 5. 4 other qualifications (this can include literature). This is a national indicator. For more information on the Capped 9 Score, including its introduction, please follow this link: https://gov.wales/sites/default/files/publications/2019-07/guidance-on-the-calculation-of-the-capped-9-points-score-interim.pdf
Where does the data actually come from?	• Welsh Examinations Database, Welsh Government (WG) • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (supplied by Welsh Government)
Who does it measure?	Pupils registered as being on roll in year 11 in the school on 12th January 2018
When does it measure it?	• 2017/18 (academic year)
What geographical area does it cover?	• Wales, Welsh health boards (pre-April 2019 boundaries), Welsh local authorities, USOAs, MSOAs • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Each student's Capped Points Score is calculated using the following method, for more information please see the following link: http://gov.wales/docs/dcells/publications/160707-revised-capped-points-overview-en.pdf 1. Qualifications relevant to each calculation are isolated: i.e. removing the qualifications counting towards the subject specific requirements when calculating the 'other 4' top results/identifying all science qualifications when calculating the top two science GCSEs or equivalent. 2. Points are standardised for all relevant awarded qualifications. 3. Qualifications are ranked by standardised points: in order from highest to lowest. 4. The GCSE equivalence volume of qualifications is summed

	from highest to lowest as ranked until the specified volume cap of 9 is reached. 5. The actual points for qualifications are totalled from highest to lowest as ranked until a cap of 9 is reached. 6. Points for the 5 subject specific GCSEs for a learner and their top 'other 4' GCSEs/equivalent volume of qualifications are summed. The mean for all learners in the school's cohort is then taken. For more information and an example on how the capped 9 score is calculated please see the following link: https://gov.wales/docs/statistics/2010/101130calculationen.pdf • Rural and Urban classifications were supplied by WG. In the analysis below the National Statistics types have been summarised into two categories, 'Urban' and 'Rural' as outlined in the Statistical Article produced alongside WIMD 2014: 'Welsh Index of Multiple Deprivation 2014: A guide to analysing deprivation in rural areas - Revised'. Under this definition 'urban' as including Less Sparse Large and Less Sparse Small Towns (NS types C1 + D1) whilst 'Rural' includes Less Sparse Others, Sparsest Large Towns, Sparsest Small Towns and Sparsest Others (C2, D2, E1 and E2). Please see the following link for more information: http://gov.wales/docs/statistics/2015/150812-wimd-2014-guide analysing-deprivation-rural-areas-revised-en.pdf • The WIMD education indicators for deprivation fifths have been created by combining the deprivation tenths (i.e. 1 and 2 = 1, 3 and 4 = 2 etc.), with 1 being the most deprived and 5 being the least deprived. Education Indicator data for the original geographies can be found here: https://statswales.gov.wales/Catalogue/Community-Safety-and-Social-Inclusion/Welsh-Index-of-Multiple-Deprivation/WIMD-Indicator-Analysis. • For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.5.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Exam data from 2015/16 onwards has not been collected for independent schools. This is due to the fact that data are only collected on qualifications approved by the Welsh Government for use in schools. Independent schools can choose other qualifications which are not approved, such as iGCSEs, and these are not included in the figures. Non-standard qualifications would achieve 0 points in the performance measures and would lead to achievements by independent schools being underrepresented. • The Wales national figure includes NEWBES (New to the English or Welsh-Based Education System) pupils, this data is not included in smaller breakdowns. Smaller breakdowns also uses matched data from the PLASC on area of domicile, resulting in some pupils not showing up in the data. As a result the Wales figure can be lower than the figures for certain breakdowns, such as rurality.

	• Only the new specifications for GCSE English Language, GCSE Welsh First Language, GCSE Mathematics-Numeracy and GCSE Mathematics count towards the literacy and maths elements of the new Capped 9 Score. Legacy qualifications do not count towards the literacy and maths elements, and Literature qualifications no longer count towards the literacy elements [1]. • Data on Key Stage 4 attainment in England and Wales are no longer comparable due to England altering their grading system to 1-9 scores instead of A*-G [1]. • Data is based on the number of pupils who were registered as being on roll in Year 11 in the school on 12th January 2018, the day of the school census; therefore, it won't necessarily reflect the number of school leavers. • More information on this indicator can be found here: http://gov.wales/docs/statistics/2016/160721-key-stage-4-performance-measures-changes-comparability-en.pdf
References	1. Welsh Government. Examination results in Wales, 2016/17. Available at: https://statswales.gov.wales/Search?Query=examination+results[Accessed 20th March 2019]

5.2.4. School leavers with essential literacy and numeracy skills

Indicator name	**School leavers with essential literacy and numeracy skills**
Notes	At the time of publication, the exact measure was not defined.

5.2.5. People able to afford everyday goods and activities (NI)

What is being measured?	**People able to afford everyday goods and activities**
How is this indicator defined?	• Percentage of households not in material deprivation (people have or can afford various items or activities for the household). • This is a national indicator.
Where does the data actually come from?	• National Survey for Wales (NSW), Welsh Government (WG) • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	Households
When does it measure it?	2017/18 – 2018/19 (financial year)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Respondents were asked a set of questions, depending on whether they were pensioners or non-pensioners, to determine whether they were deprived or not. If they were 'borderline'

	they were asked some additional questions to clarify whether they were deprived or not. • Non-pensioner adults were asked whether they had things like 'a holiday away from home for at least a week a year', 'enough money to keep their home in a decent state of decoration', or could 'make regular savings of £10 a month or more'. The questions for adults focussed on whether they could afford these items. These items focus more on the household as opposed to the individual. • Pensioners were asked slightly different questions such as whether their 'home was kept adequately warm', whether they had 'access to a car or taxi, when needed' or whether they had their hair done or cut regularly'. These also asked whether they could afford them, but also focussed on not being able to have these items for other reasons, such as poor health, or no one to help them etc. these questions were less based on the household and more about the individual. • Respondents were given a score dependent on their answers to each questions. Non-pensioners with a total score of 25 or more were classed as deprived and pensioners with a score of 20 or more were classed as deprived. • The pensioner deprivation variable and non-pensioner deprivation variable have been combined to provide an adult deprivation variable. There is no difference between adult and household deprivation, it may be referred to as either, dependent on the product. • Percentages and 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[1]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Data represents households, not individuals • For further information about the accuracy of the NSW, see page 4.5 of this technical guide

References	1. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018]

5.2.6. People in education, employment or training (NI)

What is being measured?	**People in education, employment or training**
How is this indicator defined?	• Young people in education, employment or training in Wales. • This is a national indicator.
Where does the data actually come from?	• Statistical First Release (SFR), Office for National Statistics (ONS). • Labour Force Survey/Annual Population Survey (APS) (ONS). The APS is a household survey carried out by the ONS. The survey provides rolling four-quarter labour market data for UK countries and regions and also for local areas[1].
Who does it measure?	• Persons, males and females • 16-18 year olds and 19-24 year olds
When does it measure it?	Trend: 2009 – 2018 (calendar years) Sex data: 2018 (calendar year) Disability data: 2017 Quarter 1 – 2019 Quarter 1
What geographical area does it cover?	Wales
How is it calculated?	Percentages for people not in education, employment or training (NEET) were provided by Labour Force Survey/Annual Population Survey (ONS). These figures were then subtracted from 100 to provide the figure for people in education, employment or training.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• The SFR is the most robust source for young people NEET data. However, it is only available at Wales level, by gender and by age groups 16 to 18, 19 to 24. SFR NEET was chosen over APS NEET as this data is more robust. • SFR uses the APS, Higher Education Statistics Agency (HESA), Pupil Level Annual School Census (PLASC), Lifelong Learning Wales Record (LLWR) and ONS mid-year population estimates and forecasts as its data sources. • As the data comes from a survey, the results are sample-based estimates and are therefore subject to differing degrees of sampling variability, i.e. the true value for any measure lies in a differing range about the estimated value[2]. • Disability information can be found in the quality report[2]. • 2018 data is provisional at this point. • Further information about the quality of the APS can be found here:

	http://www.ons.gov.uk/ons/guide-method/method-quality/specific/labour-market/labour-market-statistics/index.html. • Further information about the APS can be found in the data source guide in section 4.1.
References	1. Annual Population Survey (APS) available at: https://gov.wales/annual-population-survey [Accessed 20th March 2019] 2. Welsh Government. Statistics related to young people not in education, employment or training (NEET) Quality Report 2018. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-08/young-people-not-in-education-employment-or-training-neet-2018-to-2019-649.pdf [Accessed 28th August 2019]

5.2.7. Gap in employment rate for those with a long term health condition

What is being measured?	**Gap in employment rate for those with a long term health condition**
How is this indicator defined?	Gap between the employment rate for those with a long term health condition and the overall age specific employment rate in persons aged 16-64.
Where does the data actually come from?	• Annual Population Survey (APS), Office for National Statistics (ONS). • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	• Males and females • Selected age groups (persons only): - 16-44 - 45-64
When does it measure it?	2018 (calendar year)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities. • Rural and urban areas in Wales. • National deprivation fifths (WIMD).
How is it calculated?	• The percentage point gap between the percentage of survey respondents in the APS with a health condition or illnesses lasting more than 12 months (aged 16-64) who are classed as employed and the percentage of all respondents in the APS who were classified as employed (aged 16-64) without a health condition or illness lasting more than 12 months. • 95 per cent confidence intervals have been calculated for the percentage gap in employment using a method described by Public Health England[1]. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[2]. For more details regarding urban and rural classifications in Wales see section 3.5.

	• This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Further information about the quality of the APS can be found here: https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/labourforcesurveyuserguidance#2017-update. [Accessed 24th August 2017] • Further information about the APS can be found in the data source guide in section 4.1.
References	1. Public Health England. Indicator Definitions and Supporting Information. Available at: https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/6/gid/1000041/pat/6/par/E12000002/ati/102/are/E08000003/iid/90282/age/204/sex/4 [Accessed 22nd May 2018] 2. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018]

5.2.8. A sense of community (NI)

What is being measured?	**A sense of community**
How is this indicator defined?	• The age-standardised and age-specific percentage of adults (aged 16 or over) agreeing with all three of the following community cohesions questions of: belonging to the area; that people from different backgrounds get on well together; that people treat each other with respect and consideration. • This is a national indicator.
Where does the data actually come from?	• National survey for Wales (NSW), Welsh Government (WG) • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications, 2011 Office for National Statistics (ONS)
Who does it measure?	• Wales residents, males and females • Selected age groups (persons only): - 16-44 - 16-64 - 45-64 - 65-84 - 65+ - 85+ • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).

When does it measure it?	2018/19 (financial year)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Percentages and 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[1]. For more details regarding urban and rural classifications in Wales see section 3.6. • Age-standardised percentages were calculated using aggregated weightings from the 2013 European Standard Population[2] for those respondents who were aged 16 and over who reported feeling a sense of community. • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-10) codes. This is the same question as that used in the 2011 Census. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• The three community cohesion questions mentioned above are: - To what extent would you agree or disagree that you belong to your local area? - To what extent do you agree or disagree that this local area is a place where people from different backgrounds get on well together? - To what extent do you agree or disagree with the following statement? People in my local area treat each other with respect and consideration. - Those who agreed to all three of the community cohesion questions above were included in this analysis. • The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability. • Further information about the NSW can be found in the data source guide in section 4.5.

References	1. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 2. Revised European Standard Population 2013. Available at: http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/revised-european-standard-population-2013--2013-esp-/index.html [Accessed 16th January 2018]

5.2.9. People who volunteer (NI)

What is being measured?	**People who volunteer**
How is this indicator defined?	• The age-standardised and age-specific percentage of adults (aged 16 or over) who volunteer (formally or informally). • This is a national indicator.
Where does the data actually come from?	• National survey for Wales (NSW), Welsh Government (WG) • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications, 2011 Office for National Statistics (ONS)
Who does it measure?	• Wales residents, males and females • Selected age groups (persons only): - 16-44 - 16-64 - 45-64 - 65-84 - 65+ • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).
When does it measure it?	• Health boards and local authorities: 2016/17 (financial year) • National characteristics: 2017/18 (financial year)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[1]. For more details regarding urban and rural classifications in Wales see section 3.5. • Age-standardised percentages were calculated using aggregated weightings from the 2013 European Standard Population[2] for those respondents who were aged 16 and over who reported volunteering. • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day

	activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-10) codes. This is the same question as that used in the 2011 Census. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• The volunteering data could not use the combined 2016/17 and 2017/18 sample. Where possible, 2017/18 data has been used, based on a subsample of around 2,000. Due to the low numbers, only national level data has been updated to 2017/18. Health board and local authority data is based on the 2016/17 survey data only. • The percentage of people who volunteer (formally or informally) is derived from the following two volunteering questions: - Which of these clubs or organisations, if any, are you currently giving your time to for free? 1. Charitable organisation 2. School or young person's group 3. Tenants/residents group or neighbourhood watch 4. Religious group 5. Pensioners group/organisation 6. Sports club 7. Arts groups (e.g. drama, music, arts or crafts) 8. Environmental group 9. Other club or organisation 10. None of these - Do you look after, or give any help or support to family members, friends, neighbours or others because of long-term physical or mental ill-health or disability, or problems related to old age? • The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability. • Further information about the NSW can be found in the data source guide in section 4.5.

References	1. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 2. Revised European Standard Population 2013. Available at: http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/revised-european-standard-population-2013--2013-esp-/index.html [Accessed 16th January 2018]

5.2.10. People feeling lonely (NI)

What is being measured?	**People who feel lonely**
How is this indicator defined?	• The age-standardised and age-specific percentage of adults (aged 16 or over) who feel lonely. • This is a national indicator.
Where does the data actually come from?	• National survey for Wales (NSW), Welsh Government (WG) • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications, 2011 Office for National Statistics (ONS)
Who does it measure?	• Wales residents, males and females • Selected age groups (persons only): -16-44 -16-64 -45-64 -65-84 -65+ -85+ • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).
When does it measure it?	2016/17 – 2017/18 (financial year)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• The De Jong Gierveld loneliness scale was used to assess loneliness[1]. • 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[2]. For more details regarding urban and rural classifications in Wales see section 3.5. • Age-standardised percentages were calculated using aggregated weightings from the 2013 European Standard

	Population[3] for those respondents who were aged 16 and over who reported feeling lonely. • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-10) codes. This is the same question as that used in the 2011 Census. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• The NSW asked respondents 6 statements from the De Jong Gierveld 6-item Loneliness Scale[1]: - I experience a general sense of emptiness. - I miss having people around. - I often feel rejected. - There are plenty of people I can rely on when I have problems. - There are many people I can trust completely. - There are enough people I feel close to. • The scale uses three response categories of 'yes', 'more or less' and 'no'. To score the answers to the scale, the neutral and positive answers are scored as '1' on the negatively worded questions. On the positively worded items, the neutral and negative answers are scored as '1'. This does mean that an answer of 'more or less' is given the same score as 'yes' or 'no', depending on the question[4]. • Total scores of between 4-6 have been defined as feeling lonely. • The focus on both emotional and social loneliness produces results that can give insight into why someone might be experiencing loneliness[4]. • This scale is widely used across Europe, and very well-tested and evaluated for use in a number of languages and countries. • The mix of positive and negative statements can help avoid a 'response set' – where someone falls into giving automatic answers rather than considering what they are asked[4]. • The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability. • Further information about the NSW can be found in the data source guide in section 4.5.
References	1. De Jong Gierveld J & Van Tilburg T (2006) *A 6-Item Scale for Overall, Emotional, and Social Loneliness: Confirmatory Tests on Survey Data*. Research on Aging. 2006, 28:582. 2. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-

	method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 3. Revised European Standard Population 2013. Available at: http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/revised-european-standard-population-2013--2013-esp-/index.html [Accessed 16th January 2018] 4. Campaign to End Loneliness. Measuring Your Impact On Loneliness In Later Life. Available at: https://www.campaigntoendloneliness.org/wp-content/uploads/Loneliness-Measurement-Guidance1.pdf [Accessed 16th January 2018]

5.2.11. Quality of housing (NI)

What is being measured?	**Quality of housing**
How is this indicator defined?	• Percentage of assessments which are free from category 1 hazards according to the Housing Health and Safety rating system hazards. • This is a national indicator.
Where does the data actually come from?	Hazards and licences data collection, Welsh Government (WG)
Who does it measure?	Assessments of dwellings in Wales
When does it measure it?	2015/16 – 2017/18 (financial years)
What geographical area does it cover?	Wales, Welsh health boards, Welsh local authorities
How is it calculated?	• The number of assessed dwellings free from category 1 hazards, divided by the total assessed dwellings, multiplied by 100. • Confidence intervals were calculated using a method proposed by Altman et al[1].
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• This is an interim measure. • Dwellings can be assessed more than once during each reporting period. • Assessments under the Housing Health and Safety Rating Systems (HHSRS) may be carried out for a number of reasons. For example, an HHSRS assessment is carried out when licensing a house in multiple occupation or when a complaint about a property is received from the occupier or a neighbour. Whilst it can cover all residential premises, it is more commonly used to assess standards in private rented housing. • The 2011 Census defines a dwelling as a single self-contained household space (an unshared dwelling) or two or more household spaces at the same address that are not self-contained, but combine to form a shared dwelling that is self-contained. More information can be found here: https://www.gov.uk/government/uploads/system/uploads/atta

	chment_data/file/23928/120301_Derivation_of_Dwelling_count_from_2011_Census_-_separate_doc_for_web_publication.pdf • Details on Welsh housing quality standard can be found on the Welsh Government website: http://gov.wales/docs/desh/publications/141030-whqs-guide-for-social-landlords-en.pdf • Category 1 hazards are those that provide the greatest risk to occupants. As this is sourced from the annual housing hazards and licences data collection it does not cover all dwellings but just those that are assessed by local authorities. • Further information on Housing Health and Safety rating system hazards can be found in the below Department for Communities and Local Government online report: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/9425/150940.pdf
References	1. Altman D.G. et al *Statistics with confidence.* 2000 BMJ books: UK

5.2.12. Quality of the air we breathe

What is being measured?	**Quality of the air we breathe**
How is this indicator defined?	Average nitrogen dioxide (NO_2) concentration at residential dwelling locations (µg/m³).
Where does the data actually come from?	UK-AIR: Air Information Resource, Department for Environment, Food and Rural Affairs (DEFRA), Welsh Government (WG), Office for National Statistics (ONS) and Ordnance Survey (OS).
Who does it measure?	Residential dwelling locations
When does it measure it?	• Trend: 2008– 2017 (calendar years) • Health boards, local authorities: 2017 (calendar year) • Upper Super Output Areas (USOAs), Middle Super Output Areas (MSOAs): 2017 (calendar year)
What geographical area does it cover?	Wales, Welsh health boards (pre-April 2019 boundaries), Welsh local authorities, USOAs, MSOAs
How is it calculated?	• Annual Average levels of nitrogen dioxide (NO_2) pollution exposure measured in µg/m³. • Figures are calculated by modelling annual average concentrations, calibrated against national monitoring data, of nitrogen dioxide. A value is obtained for each square kilometre of Wales, and these are weighted by the population density or number of dwellings in each square kilometre, estimated from Census data, in order to calculate a national (or local authority) population average[1].
How accurate and complete will the data be for this indicator? Are there	• The WG has used published data to assign an average concentration of NO_2 to each residential dwelling in Wales based on which square kilometre of Wales it sits in. In reality, air quality will vary within any given square kilometre, depending on proximity to busy roads and other sources of air pollution.

any problems, notes for interpretation or warnings with the data in relation to this indicator?	Therefore, these assigned values should not be taken to be correct for any individual dwelling. Furthermore, modelled average concentrations for a given square kilometre should not be compared with measurements taken by the busiest roads within the same square kilometre[2]. • For each Census output area, WG has then averaged the pollutant concentrations associated with each dwelling within it to give an average NO_2 concentration across the Census output area. Census output areas are statistical geographic units comprising of around 150 dwellings, and for which a variety of Census and demographic data exist, for example population counts. As a result, they are suitable for use as building blocks for deriving average concentration data for larger geographical units, such as (in this case) local authorities and Wales as a whole[2]. • For each local authority and health board, WG have then calculated a population-weighted average over its constituent Census output areas to give an average NO_2 concentration based on where people live in those local authorities or health boards. WG have also repeated the same calculation over all Census output areas, to give a comparable figure for the whole of Wales[2].
References	1. National Indicators for Wales as required by section 10(1) of the Well-being of Future Generations (Wales) Act 2015. *How to measure a nation's progress? National Indicators for Wales: Technical document.* Available at: http://gov.wales/docs/desh/publications/160317-national-indicators-for-wales-technical-document-en.pdf [Accessed 26th February 2019] 2. Air quality- concentration at residential dwelling locations, 2008 to 2017. Available at: [https://statswales.gov.wales/Catalogue/Environment-and-Countryside/Air-Quality/airqualityindicators-by-localauthority [Accessed 26th February 2019]

5.3 Ways of living that improve health

5.3.1. Physical activity in adolescents

What is being measured?	**Physical activity in adolescents**
How is this indicator defined?	The percentage of children aged 11-16 who were physically active every day (for at least 60 minutes each day) in the past week.
Where does the data actually come from?	Health Behaviour in School-aged Children (HBSC) Survey and School Health Research Network (SHRN) Student Health and Wellbeing Survey, DECIPHer
Who does it measure?	• Boys and girls. • Children by Family Affluence Scale (FAS)
When does it measure it?	2017/18 (academic year)

What geographical area does it cover?	Wales, Welsh health boards, Welsh local authorities. Geographical boundaries are based on location of the child's school not residential location of the child.
How is it calculated?	• Young people were asked to report the number of days over the past week during which they were physically active for a total of at least 60 minutes. The question was introduced by a text defining moderate to vigorous physical activity (MVPA) as any activity that increases the heart rate and makes the person get out of breath some of the time, with examples provided. The findings presented here show the proportions reporting daily MVPA of at least one hour[1]. • In the absence of a deprivation index the HBSC FAS has been used as a proxy measure for deprivation[2]. The HBSC FAS measure is based on a set of questions on the material conditions of the households in which young people live. The questions are non-sensitive straightforward and cover car ownership and overcrowding (measured through bedroom occupancy) holidays and home computers. Young people are classified according to the summed score of the items, with the overall score being recorded to give values of low, middle and high family affluence[3].
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Please note that this indicator has been defined differently to the published SHRN report. Only children that supplied a valid month and year of birth have been included in the analysis. This reduced the initial sample size from 103,971 children to 101,345. There will therefore be slight differences between the published data and the indicators in this report. • Torfaen is suppressed within the local authority output, this is due to <75% of schools taking part. However Torfaen is included in the calculation of health board and Wales outputs • Please note local authority outputs may differ from previously published local authority reports from SHRN. This is due to a difference in calculation with SHRN taking a mean of means approach • It is possible that some respondents will give socially acceptable, rather than accurate, responses[3]. • Benefits of the FAS measure include the low percentage of missing responses from young people and its cross-national comparability. • Further information about the accuracy of the HBSC & SHRN survey can be found in the data source guide in section 4.2.
References	1. World Health Organization. *Proportion of young people who report at least one hour of MVPA daily.* 2015. Available at: http://portal.euro.who.int/en/indicators/hbsc-indicators/hbsc_11-moderate-to-vigorous-physical-activity/. [Accessed 16th January 2018] 2. DECIPHer. *Student Health and Wellbeing in Wales: Report of the 2017/18 Health Behaviour in School-aged Children Survey and School Health Research Network Student Health and Wellbeing Survey.* 2019. Available at: http://www.shrn.org.uk/wp-content/uploads/2019/05/SHRN-HBSC-NR_31.05.2019.pdf [Accessed 30th October 2019] 3. Currie C, Molcho M, Boyce W, Holstein B, Torsheim T, Richter M. *Researching health inequalities in adolescents: the development*

	of the Health Behaviour in School-Aged Children (HBSC) family affluence scale. Social Science and Medicine. 2008 Mar, 66(6):1429-36.

5.3.2. Adolescents who smoke

What is being measured?	**Adolescents who smoke**
How is this indicator defined?	The percentage of children aged 11-16 who reported smoking at least once a week.
Where does the data actually come from?	Health Behaviour in School-aged Children (HBSC) Survey and School Health Research Network (SHRN) Student Health and Wellbeing Survey, DECIPHer
Who does it measure?	• Boys and girls. • Children by Family Affluence Scale (FAS)
When does it measure it?	2017/18 (academic year)
What geographical area does it cover?	Wales, Welsh health boards, Welsh local authorities. Geographical boundaries are based on location of the child's school not residential location of the child.
How is it calculated?	• Young people were asked how often they smoke tobacco. Response options ranged from never to every day. Findings presented in the Public Health Outcomes Framework for Wales reporting tool show the proportions who reported smoking at least once a week[1]. • In the absence of a deprivation index the HBSC FAS has been used as a proxy measure for deprivation[2]. The HBSC FAS measure is based on a set of questions on the material conditions of the households in which young people live. The questions are non-sensitive straightforward and cover car ownership and overcrowding (measured through bedroom occupancy) holidays and home computers. Young people are classified according to the summed score of the items, with the overall score being recorded to give values of low, middle and high family affluence[3].
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Please note that this indicator has been defined differently to the published SHRN report. Only children that supplied a valid month and year of birth have been included in the analysis. This reduced the initial sample size from 103,971 children to 101,345. There will therefore be slight differences between the published data and the indicators in this report. • Torfaen is suppressed within the local authority output, this is due to <75% of schools taking part. However Torfaen is included in the calculation of health board and Wales outputs • Please note local authority outputs may differ from previously published local authority reports from SHRN. This is due to a difference in calculation with SHRN taking a mean of means approach • It is possible that some respondents will give socially acceptable, rather than accurate, responses.

	• Benefits of the FAS measure include the low percentage of missing responses from young people and its cross-national comparability. • Further information about the accuracy of the HBSC survey can be found in the data source guide in section 4.2.
References	1. World Health Organization. *Proportion of young people who smoke at least once a week.* 2016. Available at: http://portal.euro.who.int/en/indicators/hbsc-indicators/hbsc_21-smoking/ [Accessed 16th January 2018] 2. DECIPHer. *Student Health and Wellbeing in Wales: Report of the 2017/18 Health Behaviour in School-aged Children Survey and School Health Research Network Student Health and Wellbeing Survey.* 2019. Available at: http://www.shrn.org.uk/wp-content/uploads/2019/05/SHRN-HBSC-NR_31.05.2019.pdf [Accessed 30th October 2019] 3. Currie C, Molcho M, Boyce W, Holstein B, Torsheim T, Richter M. *Researching health inequalities in adolescents: the development of the Health Behaviour in School-Aged Children (HBSC) family affluence scale*. Social Science and Medicine. 2008 Mar, 66(6):1429-36.

5.3.3. Adolescents using alcohol

What is being measured?	**Adolescents using alcohol**
How is this indicator defined?	The percentage of children aged 11-16 who reported drinking alcohol once a week.
Where does the data actually come from?	Health Behaviour in School-aged Children (HBSC) Survey and School Health Research Network (SHRN) Student Health and Wellbeing Survey, DECIPHer
Who does it measure?	• Boys and girls. • Children by Family Affluence Scale (FAS)
When does it measure it?	2017/18 (academic year)
What geographical area does it cover?	Wales, Welsh health boards, Welsh local authorities. Geographical boundaries are based on location of the child's school not residential location of the child.
How is it calculated?	• Young people were asked how often they drink any alcoholic beverage and were given a list of drinks: cider, beer, wine, spirits, alcopops or any other drink that contains alcohol. Response options ranged from never to every day. Findings presented here show the proportions who reported drinking any alcoholic beverage at least every week[1]. • In the absence of a deprivation index the HBSC FAS has been used as a proxy measure for deprivation[2]. The HBSC FAS measure is based on a set of questions on the material conditions of the households in which young people live. The questions are non-sensitive straightforward and cover car ownership and overcrowding (measured through bedroom

	occupancy) holidays and home computers. Young people are classified according to the summed score of the items, with the overall score being recorded to give values of low, middle and high family affluence[2].
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Please note that this indicator has been defined differently to the published SHRN report. Only children that supplied a valid month and year of birth have been included in the analysis. This reduced the initial sample size from 103,971 children to 101,345. There will therefore be slight differences between the published data and the indicators in this report. • Torfaen is suppressed within the local authority output, this is due to <75% of schools taking part. However Torfaen is included in the calculation of health board and Wales outputs • Please note local authority outputs may differ from previously published local authority reports from SHRN. This is due to a difference in calculation with SHRN taking a mean of means approach • It is possible that some respondents will give socially acceptable, rather than accurate, responses[3]. • Benefits of the FAS measure include the low percentage of missing responses from young people and its cross-national comparability. • Further information about the accuracy of the HBSC survey can be found in the data source guide in section 4.2.
References	1. World Health Organization. *Proportion of young people who drink alcohol at least once a week.* 2015 Available at: http://portal.euro.who.int/en/indicators/hbsc-indicators/hbsc_23-alcohol-consumption/ [Accessed 16th January 2018] 2. DECIPHer. *Student Health and Wellbeing in Wales: Report of the 2017/18 Health Behaviour in School-aged Children Survey and School Health Research Network Student Health and Wellbeing Survey.* 2019. Available at: http://www.shrn.org.uk/wp-content/uploads/2019/05/SHRN-HBSC-NR_31.05.2019.pdf [Accessed 30th October 2019] 3. Currie C, Molcho M, Boyce W, Holstein B, Torsheim T, Richter M. *Researching health inequalities in adolescents: the development of the Health Behaviour in School-Aged Children (HBSC) family affluence scale*. Social Science and Medicine. 2008 Mar, 66(6):1429-36.

5.3.4. Adolescents drinking sugary drinks once a day or more

What is being measured?	**Adolescents drinking sugary drinks once a day or more**
How is this indicator defined?	The percentage of children aged 11-16 who reported drinking sugary drinks once a day or more.
Where does the data actually come from?	Health Behaviour in School-aged Children (HBSC) Survey and School Health Research Network (SHRN) Student Health and Wellbeing Survey, DECIPHer
Who does it measure?	• Boys and girls. • Children by Family Affluence Scale (FAS).

When does it measure it?	2017/18 (academic year)
What geographical area does it cover?	Wales, Welsh health boards, Welsh local authorities. Geographical boundaries are based on location of the child's school not residential location of the child.
How is it calculated?	• A food frequency question is used to capture this information. For each of a number of foodstuffs, including sugared drinks, the following response categories are used – 'Never', 'Less than once a week', 'Once a week', '2-4 days a week', '5-6 days a week', 'Once a day, every day' and 'Every day, more than once'. The proportions reporting daily consumption (i.e. the latter two responses combined) have been presented[1]. • In the absence of a deprivation index the HBSC FAS has been used as a proxy measure for deprivation. The HBSC FAS measure is based on a set of questions on the material conditions of the households in which young people live. The questions are non-sensitive straightforward and cover car ownership and overcrowding (measured through bedroom occupancy) holidays and home computers. Young people are classified according to the summed score of the items, with the overall score being recorded to give values of low, middle and high family affluence[2].
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Please note that this indicator has been defined differently to the published SHRN report. Only children that supplied a valid month and year of birth have been included in the analysis. This reduced the initial sample size from 103,971 children to 101,345. There will therefore be slight differences between the published data and the indicators in this report. • Torfaen is suppressed within the local authority output, this is due to <75% of schools taking part. However Torfaen is included in the calculation of health board and Wales outputs • Please note local authority outputs may differ from previously published local authority reports from SHRN. This is due to a difference in calculation with SHRN taking a mean of means approach • It is possible that some respondents will give socially acceptable, rather than accurate, responses[1]. • Benefits of the FAS measure include the low percentage of missing responses from young people and its cross-national comparability. • Further information about the accuracy of the HBSC survey can be found in the data source guide in section 4.2.
References	1. DECIPHer. Student Health and Wellbeing in Wales: Report of the 2017/18 Health Behaviour in School-aged Children Survey and School Health Research Network Student Health and Wellbeing Survey. 2019. Available at: http://www.shrn.org.uk/wp-content/uploads/2019/05/SHRN-HBSC-NR_31.05.2019.pdf [Accessed 30th October 2019] 2. Currie C, Molcho M, Boyce W, Holstein B, Torsheim T, Richter M. *Researching health inequalities in adolescents: the development of the Health Behaviour in School-Aged Children (HBSC) family affluence scale*. Social Science and Medicine. 2008 Mar, 66(6):1429-36.

5.3.5. Adults eating five fruit or vegetable portions a day

What is being measured?	Adults eating five fruit or vegetable portions a day
How is this indicator defined?	The age-standardised and age-specific percentage of adults (aged 16 or over) who reported eating five or more portions of fruit or vegetables the previous day.
Where does the data actually come from?	• 2016/17 – 2018/19 National Survey for Wales (NSW), Welsh Government (WG) • 2008 – 2015 Welsh Health Survey (WHS), WG • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	• Persons, males and female (aged 16 and over) • Selected age groups (persons only): - 16-44 - 16-64 - 45-64 - 65-84 - 65+ - 85+ • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).
When does it measure it?	• Health boards, local authorities: 2016/17 – 2018/19 (financial year) • Trend: 2008-09 – 2014-15 (two year rolling age-standardised percentages, calendar years) • National characteristics: 2016/17 – 2018/19 (financial year) • Upper Super Output Areas (USOAs): 2010 - 2015 (calendar years)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities, USOAs. • Rural and urban areas in Wales. • National deprivation fifths (WIMD).
How is it calculated?	• The NSW asks respondents about a range of food items to determine the overall amounts of fruit, vegetables and pulses consumed the previous day[1]. • For each food item, respondents were asked whether they had eaten it and, if so, how much they had consumed. Everyday measures were given for each food item: for example, tablespoons of vegetables, small bowls of salad, or medium sized fruit (such as apples). Each question provided a definition of which foods were to be included. Guidelines recommend eating at least five portions of a variety of fruit and vegetables each day. To conform with these guidelines, the questions and analysis were based on the concept of portions of 80g each and the information collected was converted into standard portions at the analysis stage[1]. • At the analysis stage, rules for certain foods were applied: respondents could obtain no more than one portion of their daily intake from fruit juice, one portion from pulses, and one portion

	from dried fruit. These restrictions are in line with guidelines, which emphasise that a variety of fruit and vegetables should be consumed[1]. • Age-standardised percentages were calculated using aggregated weightings from the 2013 European Standard Population for those respondents who were aged 16 and over who reported eating five or more portions of fruit or vegetables the previous day. • 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[2]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis used national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4. • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-10) codes. This is the same question as that used in the 2011 Census.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• In 2018/19, lifestyle questions were asked to a reduced sample of around 5,900. The 2016/17, 2017/18 and 2018/19 samples have been combined to provide a larger sample. This sample has been weighted to account for the difference in sample size. • Both the NSW and WHS have been used in the analysis of this indicator. Results aren't comparable between the NSW and WHS for a number of reasons. The primary reason is due to the change in the survey methodology[3]. • Data from the WHS has been used at USOA level since 6 years of data had to be aggregated to provide a sufficient sample size for a robust estimate. The WHS has also been used for the trend analysis since the National Survey for Wales is in its third year and therefore not enough historic data is available. • The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability. • Self-reported prevalence of healthy eating may be prone to respondent bias[4] i.e. overestimating or underestimating behaviour to give a more favourable response. • The respondents were asked about the previous day's behaviour and so this might not reflect overall eating patterns. • This indicator is a measure of healthy eating, not unhealthy eating. • Further details regarding the NSW and the WHS can be found in the data source guide in sections 4.5 and 4.8 respectively.

References	1. National Survey for Wales, 2018-19: Adult Lifestyle. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-06/national-survey-for-wales-april-2018-to-march-2019-adult-lifestyle-534.pdf [Accessed: 27th November 2019] 2. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 3. Discontinuities in results for health-related lifestyle and general health between the Welsh Health Survey and National Survey for Wales. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/discontinuities-results-health-related-lifestyle-general-health-between-welsh-health-survey-national-survey-wales-2018.pdf [Accessed 25th November 2019] 4. Miller TM, Abdel-Maksoud MF, Crane LA, Marcus AC, and Byers TE. Effect of social approval bias on self-reported fruit and vegetable consumption: a randomized controlled trial. *Nutrition Journal* 2008; 7:18. Available at: http://www.nutritionj.com/content/7/1/18 [Accessed 5th February 2018]

5.3.6. Adults meeting physical activity guidelines

What is being measured?	**Adults meeting physical activity guidelines**
How is this indicator defined?	The age-standardised and age-specific percentage of adults (aged 16 or over) who reported that they met the physical activity guidelines in the previous week. Current definition (2016/17 onward): 150 minutes or more of moderate or vigorous physical activity in the previous week. Former definition (pre 2016/17): 30 minutes or more of moderate or vigorous physical activity on 5+ days per week.
Where does the data actually come from?	• 2016/17 – 2018/19 National Survey for Wales (NSW), Welsh Government (WG) • 2005/06 – 2015 Welsh Health Survey (WHS), WG • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	• Persons, males and female (aged 16 and over) • Selected age groups (persons only): - 16-44 - 16-64 - 45-64 - 65-84 - 65+ - 85+ • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).

When does it measure it?	• Health boards, local authorities: 2016/17 – 2018/19 (financial years) using the current definition • Trend: 2005/06-2007 – 2014-15* (two year rolling age-standardised percentages) using the former definition • National characteristics: 2016/17 – 2018/19 (financial years) using the current definition • Upper Super Output Areas (USOAs): 2010 - 2015 (calendar years) using the former definition *Prior to 2007 WHS data were collected in financial years; from 2007 onwards WHS data were collected in calendar years.
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities, USOAs • Rural and urban areas in Wales. • National deprivation fifths (WIMD).
How is it calculated?	• The 2016/17, 2017/18 and 2018/19 NSW questionnaires asked respondents on what days in the previous week they walked, completed some moderate physical activity and completed some vigorous physical activity for at least 10 minutes at a time and then they were asked how much time, on average, they spent doing these activities each time. The respondents were also asked about their walking pace and the effort involved. Walking was included as a moderate activity for those walking at a 'fairly brisk' or 'fast' usual pace. For those aged 65 and over, walking at any pace was included if the effort was enough to make them breathe faster, feel warm or sweat. The information was combined to provide an estimate of the equivalent number of moderate minutes of activity undertaken the previous week. Those with the equivalent of 150 minutes or more moderate activity were classed as meeting the guidelines. • The WHS, using the former physical activity definition, asked adults on which days in the past week they did at least 30 minutes of light, moderate, and vigorous exercise or physical activity. Blocks of activity lasting more than 10 minutes, which were done on the same day, count towards the full 30 minutes. Respondents were asked to include physical activity which is part of their job. • Age-standardised percentages were calculated using aggregated weightings from the 2013 European Standard Population for those respondents who were aged 16 and over who stated they met physical guidelines in the previous week. • 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[1]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4. • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due

	to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-10) codes. This is the same question as that used in the 2011 Census.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• In 2018/19, lifestyle questions were asked to a reduced sample of around 6,000. The 2016/17, 2017/18 and 2018/19 samples have been combined to provide a larger sample. This sample has been weighted to account for the difference in sample size. • Both the NSW and WHS have been used in the analysis of this indicator. Also both the current and former definition of meeting physical activity guidelines have been used. Results aren't comparable when differing definitions and surveys have been used. There are a number of reasons why results using the NSW and WHS aren't comparable; the primary reason is due to the change in the survey methodology[2]. • The former definition has been used at USOA level since 6 years of data from the WHS had to be aggregated to provide a sufficient sample size for a robust estimate. Trend data also used the former definition since the National Survey for Wales is in its third year and therefore not enough historic data is available. • The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability. • The NSW[3] and WHS[4] data is self-reported. Health-related behaviours can be a complex area to measure, there may be some differences between what people report and what they do (for instance, they may tend to overestimate their levels of physical activity). However, survey data still provides a reliable means of comparing patterns for these behaviours between different groups and over time. • Only 1/3 of respondents answered the former physical activity question in the 2015 WHS due to a split sample. As a result of this there is a reduced sample size for the USOA analysis and the 2014-2015 trend analysis. • Further details regarding the National Survey for Wales and the Welsh Health Survey can be found in the data source guide in sections 4.5 and 4.8 respectively.

References	1. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 2. Discontinuities in results for health-related lifestyle and general health between the Welsh Health Survey and National Survey for Wales. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/discontinuities-results-health-related-lifestyle-general-health-between-welsh-health-survey-national-survey-wales-2018.pdf [Accessed 25th November 2019] 3. National Survey for Wales, 2018-19: Adult Lifestyle. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-06/national-survey-for-wales-april-2018-to-march-2019-adult-lifestyle-534.pdf [Accessed 27th November 2019] 4. Welsh Health Survey methods and definitions available at: http://gov.wales/docs/statistics/2016/160622-welsh-health-survey-local-authority-local-health-board-trends-2003-04-2015-en.xlsx [Accessed 16th January 2018]

5.3.7. Adults who smoke

What is being measured?	**Adults who smoke**
How is this indicator defined?	The age-standardised and age-specific percentage of adults (aged 16 or over) who reported a smoking status of 'daily smoker' or 'occasional smoker'.
Where does the data actually come from?	• 2016/17 – 2018/19 National Survey for Wales (NSW), Welsh Government (WG) • 2005/06 – 2015 Welsh Health Survey (WHS), WG • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications, 2011 (ONS)
Who does it measure?	• Persons, males and female (aged 16 and over) • Selected age groups (persons only): - 16-44 - 16-64 - 45-64 - 65-84 - 65+ - 85+ • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).
When does it measure it?	• Health boards, local authorities: 2016/17 – 2018/19 (financial years) • Trend: 2005/06-2007 – 2014-15* (two year rolling age-standardised percentages) • National characteristics: 2016/17 – 2018/19 (financial years)

	• Upper Super Output Areas (USOAs): 2010 - 2015 (calendar years) *Prior to 2007 WHS data were collected in financial years; from 2007 onwards WHS data were collected in calendar years.
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities, USOAs. • Rural and urban areas in Wales. • National deprivation fifths (WIMD).
How is it calculated?	• Age-standardised percentages were calculated using aggregated weightings from the 2013 European Standard Population for those aged 16 and over who reported a smoking status of 'daily smoker' or 'occasional smoker'. • 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • The NSW and WHS asked adults whether they smoked (daily or occasionally), used to smoke (daily or occasionally), or had never smoked. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[1]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4. • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-10) codes. This is the same question as that used in the 2011 Census.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• In 2018/19, lifestyle questions were asked to a reduced sample of around 6,000. The 2016/17, 2017/18 and 2018/19 samples have been combined to provide a larger sample. This sample has been weighted to account for the difference in sample size. • Both the NSW and WHS have been used in the analysis of this indicator. Results aren't comparable between the NSW and WHS for a number of reasons. The primary reason is due to the change in the survey methodology[2]. • Data from the WHS has been used at USOA level since 6 years of data had to be aggregated to provide a sufficient sample size for a robust estimate. The WHS has also been used for the trend analysis since the National Survey for Wales is in its third year and therefore not enough historic data is available. • The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability. • The NSW and WHS data is self-reported and may be affected by individuals' perception of their own health.

	• Self-reported prevalence of smoking may be more prone to respondent bias i.e. smokers may be less likely to answer questions about smoking. • Further details regarding the National Survey for Wales and the Welsh Health Survey can be found in the data source guide in sections 4.5 and 4.8 respectively.
References	1. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 2. Discontinuities in results for health-related lifestyle and general health between the Welsh Health Survey and National Survey for Wales. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/discontinuities-results-health-related-lifestyle-general-health-between-welsh-health-survey-national-survey-wales-2018.pdf [Accessed 25th November 2019]

5.3.8. Adults drinking above guidelines

What is being measured?	**Adults drinking above guidelines**
How is this indicator defined?	The age-standardised and age-specific percentage of adults (aged 16 or over) who reported drinking above guidelines. Current definition (2016/17 onward): Average weekly consumption above 14 units Former definition (pre 2016/17): Men drinking more than 4 units, women more than 3 units on the heaviest drinking day in the past week
Where does the data actually come from?	• 2016/17 – 2018/19 National Survey for Wales (NSW), Welsh Government (WG) • 2005/06 – 2015 Welsh Health Survey (WHS), WG • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	• Persons, males and female (aged 16 and over) • Selected age groups (persons only): - 16-44 - 16-64 - 45-64 - 65-84 - 65+ - 85+ • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).
When does it measure it?	• Health boards, local authorities: 2016/17 – 2018/19 (financial years) using the current definition • Trend: 2008-09 – 2014-15* (two year rolling age-standardised percentages) using the former definition

	• National characteristics: 2016/17 – 2018/19 (financial years)using the current definition • Upper Super Output Areas (USOAs): 2010 - 2015 (calendar years) using the former definition *Prior to 2007 WHS data were collected in financial years; from 2007 onwards WHS data were collected in calendar years.
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities, USOAs. • Rural and urban areas in Wales. • National deprivation fifths (WIMD).
How is it calculated?	• The current guideline for both men and women suggests drinking no more than 14 units a week on a regular basis. This replaces the former drinking above guidelines definition of men drinking more than 4 units and women drinking more than 3 units[1]. • Age-standardised percentages were calculated using aggregated weightings from the 2013 European Standard Population for those aged 16 and over who reported drinking above the guidelines. • 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • Respondents were asked to indicate how often they had consumed each type of alcohol during the past 12 months, and how much they had usually consumed; they were also asked how many measures of each type of alcohol they had consumed on their heaviest drinking day the previous week. Weekly consumption of each type of drink was calculated by multiplying the units usually consumed on a day when that type of alcohol was drunk by a fraction representing the frequency with which it was drunk. The results for each type of drink were added together to give an overall weekly figure[1]. • Some respondents who did drink stated that their usual weekly consumption was none – this may lead to an underestimate in weekly drinking estimates[1]. • The Department of Health guidelines about sensible drinking are that men should not regularly drink more than 3 – 4 units of alcohol per day, and women not more than 2 – 3 units. These were the guidelines at the time of the survey, proposed new guidelines were published in 2016 for consultation[1]. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[2]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4. • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-

	10) codes. This is the same question as that used in the 2011 Census.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• In 2018/19, lifestyle questions were asked to a reduced sample of around 6,000. The 2016/17, 2017/18 and 2018/19 samples have been combined to provide a larger sample. This sample has been weighted to account for the difference in sample size. • Both the NSW and WHS have been used in the analysis of this indicator. Also both the current and former definition of drinking above guidelines have been used. Results aren't comparable when differing definitions and surveys have been used. There are a number of reasons why results using the NSW and WHS aren't comparable, the primary reason is due to the change in the survey methodology[3]. • The former definition has been used at USOA level since 6 years of data from the WHS had to be aggregated to provide a sufficient sample size for a robust estimate. Trend data also used the former definition since the National Survey for Wales is in its third year and therefore not enough historic data is available. • The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability. • The NSW[1] and WHS data is self-reported and health-related behaviours can be a complex area to measure. There may be some differences between what people report and what they do (for instance, they may tend to underestimate their alcohol consumption). However, survey data still provides a reliable means of comparing patterns for these behaviours between different groups and over time[1]. • Data from the surveys only reflects the week before the survey and therefore can be affected by events that do not occur weekly, e.g. birthday celebrations. It may also be difficult to estimate the amount of alcohol poured without a measure. • Survey data on alcohol are known to be underestimated. • Further details regarding the National Survey for Wales and the Welsh Health Survey can be found in the data source guide in sections 4.5 and 4.8 respectively.
References	1. National Survey for Wales, 2018-19: Adult Lifestyle. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-06/national-survey-for-wales-april-2018-to-march-2019-adult-lifestyle-534.pdf [Accessed 27th November 2019] 2. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 3. Discontinuities in results for health-related lifestyle and general health between the Welsh Health Survey and National Survey for Wales. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/discontinuities-results-health-related-

	lifestyle-general-health-between-welsh-health-survey-national-survey-wales-2018.pdf [Accessed 25th November 2019]

5.3.9. Teenage pregnancies

What is being measured?	**Teenage pregnancies**
How is this indicator defined?	Teenage conception rate, females aged 15–17 years, per 1,000 females
Where does the data actually come from?	Numerator: Conception statistics, Office for National Statistics (ONS) Denominator: Mid-year population estimates, ONS
Who does it measure?	Females 15-17 years of age
When does it measure it?	Trend: 2006/08 - 2015/17 (3 year rolling rate, calendar years) Health boards, local authorities: 2017 (calendar year) Upper Super Output Areas (USOAs): 2013– 2017 (calendar years)
What geographical area does it cover?	Wales, Welsh health boards, Welsh local authorities, USOAs
How is it calculated?	• Number of conceptions among teenage girls under 18 years divided by the female population aged 15-17 multiplied by 1,000 giving a rate per 1,000 women. • Confidence intervals were calculated using a method proposed by Altman, D.G. et al[1].
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Conception statistics do not include miscarriages or illegal abortions, therefore the actual number of teenage conceptions may be underestimated. • Recording data relating to births and legal abortions is mandatory; therefore, data are expected to be of a high level of quality and completeness. • Small numbers of events are more prone to random variation, meaning that rates could substantially change from one period to another by chance alone. • The date of conception is estimated using recorded gestation for abortions and stillbirths, and by assuming 38 weeks for live births. • Conception rates have been calculated using mid-year population estimates based on the 2011 Census. • Further information on conceptions data can be found on the Office for National Statistics website: https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/conceptionandfertilityrates/bulletins/conceptionstatistics/2015
References	1. Altman D.G. et al *Statistics with confidence.* 2000. BMJ books: UK

5.3.10. Smoking in pregnancy

What is being measured?	Smoking in pregnancy
How is this indicator defined?	The percentage of pregnant women who are smokers at 36-38 weeks.
Where does the data actually come from?	• Health board maternity dataset. Managed by NHS Wales Informatics Service (NWIS). • The data from each health board maternity dataset were submitted electronically to Public Health Wales Informatics, who then made the analysed data available to the Public Health Wales Observatory.
Who does it measure?	Pregnant women who smoke at 36-38 weeks
When does it measure it?	2016/17 (financial year)
What geographical area does it cover?	Wales, Welsh health boards (pre-April 2019 boundaries)
How is it calculated?	• The total number of women who smoke at 36-38 weeks, divided by the total number of women assessed, multiplied by 100. • Confidence intervals were calculated using a method proposed by Wilson[1].
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Smoking during pregnancy is self-reported by the mother if carbon monoxide testing is unavailable. Therefore results are prone to respondent bias i.e. mothers may under or over estimate their behaviour to give a more favourable response. • Data is collected on local maternity information systems, but there is no standardisation between health boards[2]. • Data is unavailable at local authority level. • A woman with multiple pregnancies who gave birth on two separate occasions during the financial year would be counted twice. A woman with a pregnancy resulting in twins and other multiple births would be counted once. • Records where the response was missing or not known have been excluded from the numerator and denominator.
References	1. Wilson, E.B. Probable inference, the law of succession, and statistical inference. *J Am Stat Assoc*. 1927; 22:209-212. Cited in Altman D.G. et al *Statistics with Confidence (2nd edn).* 2000. BMJ Books: UK (page 46) 2. Public Health Wales. Terms of Reference, Early years surveillance implementation sub group. 2015. Available at: http://www.wales.nhs.uk/sitesplus/documents/888/22.05.15%20Early%20Years%20Surveillance%20Implementation%20Sub%20Group%20TOR%20%20May%202015%20FINAL.doc.docx [Accessed 16th January 2018]

5.3.11. Breastfeeding at 10 days

What is being measured?	Breastfeeding at ten days

How is this indicator defined?	The percentage of babies exclusively breastfed at 10 days following birth.
Where does the data actually come from?	• National Community Child Health Database (NCCHD) • Welsh Index of Multiple Deprivation (WIMD) 2014, Welsh Government (WG) • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	Total live births
When does it measure it?	2018 (calendar year)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities. • Rural and urban areas in Wales. • National deprivation fifths (WIMD).
How is it calculated?	• The number and percentage of babies exclusively breastfed at 10 days following birth out of all live births where breastfeeding status is recorded. • Confidence intervals were calculated using a method proposed by Wilson, E.B. et al[1]. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[2]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• The definition of breastfeeding at birth is the method of feeding established at the time of discharge from maternity care. • The definition of exclusively breastfed are those receiving exclusive milk breastfeeding or receiving breast milk by any other means e.g. tube, cup, syringe etc and essential medication. • Due to the way sub-national and national births are calculated, the Wales figure will not match the sum of the health board/local authority figures. This is due to births taking place outside of their area of usual residence and the record of their birth not always being transferred to the correct trust. • The record must have a valid response to method of feeding to be included in the calculations, null responses have been omitted. Some care must be used when interpreting the results as some local authorities have low reporting rates. Data have been suppressed for Swansea Bay UHB and its local authorities, together with Pembrokeshire, Carmarthenshire, Bridgend and Merthyr Tydfil local authorities due to low reporting rates in these areas. Further information on the NCCHD can be found in the data source guide in section 4.4.
References	1. Wilson, E.B. Probable inference, the law of succession, and statistical inference. *J Am Stat Assoc*. 1927; 22:209-212. Cited in Altman D.G. et al *Statistics with Confidence (2nd edn).* 2000. BMJ Books: UK (page 46) 2. Office for National Statistics. 2011 rural/urban classification. Available at:

	http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 23rd July 2018]

5.3.12. Vaccination rates at age 4

What is being measured?	Vaccination rates at age 4
How is this indicator defined?	Percentage of children who received the following scheduled vaccinations at age 4: - four in one pre-school booster (against diphtheria, tetanus, pertussis and polio) - Hib/men C booster (against Haemophilus influenza type b (Hib) disease and meningococcal C disease) - Two doses of MMR (Measles, Mumps and Rubella)
Where does the data actually come from?	Public Health Wales Communicable Disease Surveillance Centre (CDSC) and Vaccine Preventable Disease Programme (VPDP), who calculate vaccine coverage using data from National Community Child Health Database (NCCHD) which is maintained by NHS Wales Information Service (NWIS).
Who does it measure?	Children aged 4
When does it measure it?	• Trend: 2009/10 – 2018/19 (financial years) • Health boards, local authorities: 2018/19 (financial years) • Upper Super Output Areas (USOAs), Middle Super Output Areas (MSOAs): 2018/19 (financial years) • National characteristics: 2018/19 (financial years)
What geographical area does it cover?	Wales, Welsh health boards, Welsh local authorities, USOAs, MSOAs
How is it calculated?	• The analysis was carried out by the preventable disease programme and communicable disease surveillance centre. • The number of children who received the scheduled vaccinations detailed above divided by the number of children aged 4 multiplied by 100. • This measure is calculated using appropriate booster immunisation or final course doses. Figures are calculated for children living and resident in Wales as at the end of March in each year.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Caution should be taken when interpreting trend data as different vaccinations have been recorded between 2009 and 2016[1]: – 2009-2010: MMR dose 2, '4 in 1' preschool booster, MenC dose 3. – 2010-2017: MMR dose 2, '4 in 1' preschool booster, HibMenC booster. • The Pneumococcal conjugate booster is excluded from this analysis between 2011 and 2016 as it is not advised to give this vaccine after two years of age. Although this raises an

	inconsistency with reports published at the time, it is the most operationally useful measure for health boards. • HibMenC booster and pneumococcal conjugate booster are not included in calculations relating to 2009-2010 as they were not part of the routine schedule for children in this age-group at that time (the third dose of the Men C primary is used here instead). • Data for 886 children was recorded in unknown health boards between 2009/10 – 2018-19, this information has not been included in the analysis. • National level figures and health board/local authority breakdowns of this composite measure of immunisation uptake have been published by Public Health Wales VPDP and CDSC since 2011-12 in annual and quarterly COVER report. • The 'up to date by 4y' measures for years 2008-9 to 2010-11 have been calculated using the historical immunisation datasets (the source of which is the NCCHD) which were used in production of Annual COVER reports. Data prior to these years are not available in a format which would allow production of the composite measure. • During 2018 PHW VPDP undertook a large scale audit of COVER data alongside Powys Teaching Health Board and NWIS. This resulted in improved data quality in the National Community Child Health Database and increases in reported uptake of immunisations in those aged four years and over. This is reflected in data for 2018-19 onwards.
References	1. Public Health Wales. The UK childhood immunisation schedule. [Online]. 2013. Available at: http://www.wales.nhs.uk/sites3/page.cfm?orgid=457&pid=54151 [Accessed 26th February 2019]

5.4 Health throughout the life-course

5.4.1. Low birth weight (NI)

What is being measured?	**Low birth weight**
How is this indicator defined?	• The percentage of singleton live-born babies whose birth weight is below 2500g. • This is a national indicator.
Where does the data actually come from?	• National Community Child Health Database (NCCHD) • Welsh Index of Multiple Deprivation (WIMD) 2014, Welsh Government (WG) • Rural/urban classifications, 2011 Office for National Statistics (ONS)
Who does it measure?	Children, boys and girls (Wales residents), all singleton live births.
When does it measure it?	Trend: 2009 - 2018 (calendar year) Wales, health boards, local authorities: 2018 (calendar year) Upper Super Output Areas (USOAs): 2016 - 2018 (calendar year)

	Middle Super Output Areas (MSOAs): 2014 – 2018 (calendar year) Lower Super Output Areas (LSOAs): 2009 – 2018 (calendar year) National characteristics: 2018 (calendar years)
What geographical area does it cover?	• Wales, Welsh health boards Welsh local authorities, USOAs, MSOAs, LSOAs. • Rural and urban areas in Wales. • National deprivation fifths (WIMD).
How is it calculated?	• The number of singleton live born babies with a birth weight below 2500g divided by the total number of singleton live born babies with a known birth weight times 100 • Confidence intervals were calculated using a method proposed by Wilson[1]. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[2]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Only births with a known birth weight are included (i.e. missing data and birth weights <=500g and >6000g are excluded). • Analysis excludes multiple births. • Due to the way sub-national and national births are calculated, the Wales figure will not match the sum of the health board/local authority figures. This is due to births taking place outside of their area of usual residence and the record of their birth not always being transferred to the correct trust. • Analysis includes live births only. • Further work on the NCCHD can be found here: https://gov.wales/sites/default/files/statistics-and-research/2018-11/birth-data-national-community-child-health-database-quality-report.pdf. • Further information on the NCCHD can be found in the data source guide in section 4.4.
References	1. Wilson, E.B. Probable inference, the law of succession, and statistical inference. *J Am Stat Assoc*. 1927; 22:209-212. Cited in Altman D.G. et al. *Statistics with Confidence (2nd edn)*. 2000. BMJ Books: UK (page 46) 2. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018]

5.4.2. Children age 5 of a healthy weight

What is being measured?	**Children age 4-5 years who are underweight or healthy weight**
How is this indicator defined?	Percentage of children in reception year (aged 4-5) who are underweight or of healthy weight.

Where does the data actually come from?	• Child Measurement Programme (NWIS) • Welsh Index of Multiple Deprivation (WIMD) 2014, Welsh Government (WG) • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	Children, boys and girls in reception year (aged four to five).
When does it measure it?	• Wales, health boards and local authorities: 2017/18 (academic year) • Trend: 2012/13 – 2017/18 (academic year), Wales, health boards, local authorities • Upper Super Output Areas (USOAs), Middle Super Output Areas (MSOAs): 2013/14 – 2017/18 combined (academic year) • National Characteristics: 2017/18 (academic year)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities, USOAs, MSOAs. • Rural and urban areas in Wales. • National deprivation fifths (WIMD).
How is it calculated?	• Prevalence rates were calculated using the age and sex-specific Body Mass Index (BMI) centiles calculated using the British 1990 growth reference (UK90) (from a method proposed by Cole et al)[1]. The BMI was calculated using a method proposed by Keys et al[2]. The following weight categories have been assigned: - underweight: less than but not including 2nd centile; - healthy weight: 2nd centile up to but not including 85th centile. - healthy weight or underweight: 0 centile up to but not including 85th centile. • Confidence intervals were calculated using a method proposed by Wilson[3]. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[4]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Data in this document are for those who are 'healthy weight or underweight'. Consequently, the data includes 1543 (0.8 per cent) children who are categorised as underweight and not healthy weight in academic years 2012/13 to 2017/18 (249, 0.8 per cent, in academic year 2017/18). • Records are included in their respective Child Measurement Programme for Wales if they meet all of the following criteria: - location of residence can be determined; - residence in Wales; - school located in Wales; - sex is recorded; born in the period September 2007 to August 2008 (2012/13) or;

	- born in the period September 2008 to August 2009 (2013/14) or; - born in the period September 2009 to August 2010 (2014/15) or; - born in the period September 2010 to August 2011 (2015/16) or; - born in the period September 2011 to August 2012 (2016/17) or; - born in the period September 2012 to August 2013 (2017/18). • Eligible records are determined to be valid, and will be counted in the number measured, if they meet all of the following criteria: - height measurement recorded and is not an implausible measurement; - weight measurement recorded and is not an implausible measurement; - consent not withdrawn; - measurement collected during the academic year 2012/13 or, - measurement collected during the academic year 2013/14 or, - measurement collected during the academic year 2014/15 or, - measurement collected during the academic year 2015/16 or, - measurement collected during the academic year 2016/17 or, - measurement collected during the academic year 2017/18.
References	1. Cole, T.J. et al Body mass index reference curves for the UK. *Archives of Disease in Childhood*. 1995; 73: 25-9. Cited in Dinsdale H, Ridler C, Ells L J. *A simple guide to classifying body mass index in children*. 2011. Oxford: National Obesity Observatory. 2. Keys, A. et al Indices of relative weight and obesity. *Journal of Chronic Diseases*. 1972; 25:329-343. 3. Wilson, E.B. Probable inference, the law of succession, and statistical inference. *J Am Stat Assoc*. 1927; 22:209-212. Cited in Altman D.G. Et al *Statistics with Confidence (2nd edn).* 2000. BMJ Books: UK (page 46). 4. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018]

5.4.3. Adolescents of healthy weight

What is being measured?	**Adolescents of a healthy weight**
How is this indicator defined?	The percentage of children aged 11-16 who are of a healthy weight.

Where does the data actually come from?	Health Behaviour in School-aged Children (HBSC) Survey and School Health Research Network (SHRN) Student Health and Wellbeing Survey, DECIPHer
Who does it measure?	• Boys and girls. • Children by Family Affluence Scale (FAS).
When does it measure it?	2017/18 (academic year)
What geographical area does it cover?	Wales, Welsh health boards. Geographical boundaries are based on location of the child's school not residential location of the child.
How is it calculated?	• Young people were asked how much they weighed without clothes and how tall they were without shoes. These data were (re)coded in centimetres and kilograms respectively to calculate the Body Mass Index (BMI) (weight (kg) divided by height (m^2)). • The percentage of young people who are healthy weight are based on the international BMI standards for young people adopted by the International Obesity Taskforce (IOTF), called the IOTF BMI cut-off points[1]. • In the absence of a deprivation index the HBSC FAS has been used as a proxy measure for deprivation. It is based on a set of questions on the material conditions of the households in which young people live. The questions are non-sensitive straightforward and cover car ownership and overcrowding (measured through bedroom occupancy) holidays and home computers. Young people are classified according to the summed score of the items, with the overall score being recorded to give values of low, middle and high family affluence[2].
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Please note that this indicator has been defined differently to the published SHRN report. Only children that supplied a valid month and year of birth have been included in the analysis. This reduced the initial sample size from 103,971 children to 101,345. There will therefore be slight differences between the published data and the indicators in this report. • Torfaen is suppressed within the local authority output, this is due to <75% of schools taking part. However Torfaen is included in the calculation of health board and Wales outputs • All adolescent calculations only include those who reported their sex to be male or female. This is due to difficulty in defining healthy weight in those who preferred not to state their sex. • BMI cannot be reported to local authority level due to small sample sizes, 7,104 valid responses out of a total of 101,345 children in the survey. Height and weight questions used to calculate BMI were asked to a small sub sample of adolescents by health board, no data was collected from Blaenau Gwent. • BMI data is calculated from self-reported height/weight figures and from a smaller sample size owing to high levels of non-response so should be treated with some caution[3]. • Benefits of the FAS measure include the low percentage of missing responses from young people and its cross-national comparability.

	• Further information about the accuracy of the HBSC survey can be found in the data source guide in section 4.2.
References	1. Cole. T.J et al. Extended international (IOTF) body mass index cut-offs for thinness, overweight and obesity. Pediatric Obesity. 2012; 7(4): 284-294. 2. Currie C, Molcho M, Boyce W, Holstein B, Torsheim T, Richter M. Researching health inequalities in adolescents: the development of the Health Behaviour in School-Aged Children (HBSC) family affluence scale. *Social Science and Medicine*. 2008 Mar, 66(6):1429-36. 3. World Health Organization. *Proportion of young people who are overweight or obese.* 2016. Available at: http://portal.euro.who.int/en/indicators/hbsc-indicators/hbsc_18-bmi/. [Accessed 16th January 2018]

5.4.4. Tooth decay among 5 year olds

What is being measured?	**Tooth decay among five year olds**
How is this indicator defined?	The average number of decayed, missing or filled teeth (dmft) in children aged 5 years
Where does the data actually come from?	• Welsh Dental Survey, Welsh Oral Health Information Unit (WOHIU) • Welsh Index of Multiple Deprivation (WIMD) 2014, Welsh Government (WG) • Rural/urban classifications (supplied by Cardiff University)
Who does it measure?	5 year olds (school year 1) in state primary schools who have been examined as part of the Welsh Dental Survey
When does it measure it?	2015 - 2016 *Survey conducted at different dates for different areas within this time frame
What geographical area does it cover?	• Wales, Welsh health boards (pre-April 2019 boundaries), Welsh local authorities • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• The average number of dmft in children in this survey was calculated using British Association for the Study of Community Dentistry (BASCD) guidelines[1]. • Confidence intervals were calculated using a method proposed by Wilson[2]. • Rural and Urban definitions were supplied by Welsh Government. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.

How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• The data was collected using positive consent and cannot be compared with data collected across the UK prior to 2007 or in Scotland after 2007. • WOHIU: Dental examiners and recorders attend training to ensure standardisation of procedures. Data cleansing and analysis is undertaken by the Welsh Oral Health Information Unit to ensure a common method is used. Data undergo a three way data handling process to ensure continued data quality. • Deprivation and rural and urban status has been classified by the schools location rather than the residents address. • For further information please see the survey of five year olds oral health 2015-2016 full data report: http://www.cardiff.ac.uk/__data/assets/word_doc/0019/801820/Picture-of-Oral-Health-2017_final-report-for-WOHIU-website.docx
References	1. Welsh Oral Health Information Unit. 2014/2015 Dental Survey Protocol. Epidemiological survey of school year 1 (5-year-old) children in Wales. Available at: http://www.cardiff.ac.uk/__data/assets/pdf_file/0009/801828/2014-Dental-Survey-Protocol-5yo-v1.pdf [Accessed 28th February 2019] 2. Wilson, E.B. Probable inference, the law of succession, and statistical inference. *J Am Stat Assoc*. 1927; 22:209-212. Cited in Altman D.G. Et al. *Statistics with Confidence (2nd edn).* 2000. BMJ Books: UK (page 46).

5.4.5. Working age adults in good health

What is being measured?	**Working age adults in good health**
How is this indicator defined?	The age specific rate of working age adults who reported being in good health.
Where does the data actually come from?	• 2017/18 – 2018/19 National Survey for Wales (NSW), Welsh Government (WG) • 2003/04 – 2015 Welsh Health Survey (WHS), Welsh Government (WG) • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	• Persons, males and females • Selected age groups (persons only): - 16-44 - 45-64 • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).
When does it measure it?	• Health boards and local authorities: 2017/18 – 2018/19 (financial year) • Trend: 2003/04-2004/05 – 2014-15* (two year rolling percentages) • National characteristics: 2016/17 – 2017/18 (financial year)

	• Upper Super Output Areas (USOAs): 2010 – 2015 (calendar years) *Prior to 2007 WHS data were collected in financial years; from 2007 onwards WHS data were collected in calendar years.
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities, USOAs • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Percentages and 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • The NSW asked respondents to rate their own general health on a five-point scale ranging from very good to very bad. Responses rated as very good or good have been combined for this indicator. • The WHS adult questionnaire included a standard set of 36 health status questions known as SF-36 (version 2). SF-36 questions asked respondents about their own perception of their physical and mental health and the impact it has on their daily lives. The SF-36 questions include a question asking respondents to rate their own general health, asking respondents to rate their own general health on a five-point scale ranging from excellent to poor. Responses rated as good, very good and excellent have been combined for this indicator. • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-10) codes. This is the same question as that used in the 2011 Census. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[1]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Both the NSW and WHS have been used in the analysis of this indicator. Also how good health is defined differs between the surveys. Results aren't comparable where different surveys[2] and different definitions of good health have been used. • Data from the WHS has been used at USOA level since 6 years of data had to be aggregated to provide a sufficient sample size for a robust estimate. The WHS has also been used for the trend analysis since the NSW is in its third year and therefore not enough historic data is available. • The NSW and WHS data is self-reported and may be affected by individuals' perception of their own health. • Non-responding adults were more likely than those who responded to the survey to be described by the household informant as having good general health.

	• The NSW and WHS do not include adults living in institutional settings such as care homes or nursing homes etc. It should be noted that people living in institutions are likely to be on average, in poorer health than those in private households. This should be kept in mind when considering results from this survey. • The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability. • Further details regarding the National Survey for Wales and the Welsh Health Survey can be found in the data source guide in sections 4.5 and 4.8 respectively.
References	1. Office for National Statistics. 2011 rural/urban classification. Available at:http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 2. Discontinuities in results for health-related lifestyle and general health between the Welsh Health Survey and National Survey for Wales. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/discontinuities-results-health-related-lifestyle-general-health-between-welsh-health-survey-national-survey-wales-2018.pdf [Accessed 25th November 2019]

5.4.6. Working age adults free from limiting long term illness

What is being measured?	**Working age adults free from limiting long term illness**
How is this indicator defined?	The age specific rate of working age adults who responded that they are free from limiting long term illness.
Where does the data actually come from?	• 2017/18 – 2018/19 National Survey for Wales (NSW), Welsh Government (WG) • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	• Persons, males and females • Selected age groups (persons only): - 16-44 - 45-64
When does it measure it?	• Health boards, local authorities and national characteristics: 2017/18 – 2018/19 (financial year)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Percentages and 95 per cent confidence intervals were calculated using the default method in Stata for survey data.

	• Adults that are free from a limiting long term illness are respondents who reported that their day to day activities were not limited at all by a health problem or disability. • The NSW asked adults do they have any physical or mental health conditions or illnesses lasting or expected to last 12 months or more. For those that answered 'yes', they were asked if any of their conditions or illnesses reduce their ability to carry-out day-to-day activities either 'a lot', 'a little' or 'not at all'. • The NSW asked adults if their day-to-day activities were limited because of a health problem (any heart condition, any respiratory illness, any mental illness, diabetes, any chronic illness or illness)or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes' or 'no'. Further information on the methods and definitions can be found here: https://gov.wales/docs/caecd/research/2018/180620-national-survey-wales-2017-18-technical-report-en.pdf • Rural and Urban definitions were determined from the Office for National Statistics (ONS) Rural Urban Classification 2011[1]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Both the NSW and WHS have been used in the analysis of this indicator. Results aren't comparable between the NSW and WHS for a number of reasons. The primary reason is due to the change in the survey methodology[2]. • The NSW data is self-reported and may be affected by individuals' perception of their own health. • Further details regarding the National Survey for Wales and the Welsh Health Survey can be found in the data source guide in sections 4.5 and 4.8 respectively.
References	1. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 2. Discontinuities in results for health-related lifestyle and general health between the Welsh Health Survey and National Survey for Wales. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/discontinuities-results-health-related-lifestyle-general-health-between-welsh-health-survey-national-survey-wales-2018.pdf [Accessed 25th November 2019]

5.4.7. Life satisfaction among working age adults

What is being measured?	**Life satisfaction among working age adults**

How is this indicator defined?	The age specific rate of respondents aged 16-64 who rate their satisfaction with their life as 7 out of 10 or higher.
Where does the data actually come from?	• National Survey for Wales (NSW), Welsh Government (WG) • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	• Persons, males and females • Selected age groups (persons only): - 16-44 - 45-64 • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).
When does it measure it?	• Health boards, local authorities: 2017/18 – 2018/19 (financial years) • National characteristics: 2017/18 – 2018/19 (financial years)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Percentages and 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[1]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4. • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-10) codes. This is the same question as that used in the 2011 Census.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• The NSW is a major study which involves conducting more than 10,000 interviews with a randomly selected sample of people aged 16 and over across Wales per year[2]. • A large randomly selected sample with allows analysis by population sub-groups and local authority areas and for the results to be as representative as possible of the people in Wales, including harder-to-reach groups such as younger working people[3]. • As the survey is based on self-reported data, the results are prone to respondent bias i.e. people may under or over estimate their behaviour to give a more favourable response.

	• The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability. • Further information about the NSW can be found in the data source guide in section 4.5.
References	1. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 2. National Survey for Wales, 2016-17 onwards, Quality Report. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/national-survey-wales-quality-report-2016-17-onwards.pdf [Accessed 20th March 2019] 3. National Survey for Wales, 2018-19 Technical Report. July 2018. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-07/national-survey-for-wales-april-2018-to-march-2019-technical-report_0.pdf [Accessed 9th December 2019]

5.4.8. Working age adults of healthy weight

What is being measured?	**Working age adults of healthy weight**
How is this indicator defined?	The age specific rate of working age adults (aged 16-64) who reported having a healthy weight (Body Mass Index (BMI) between 18.5 and 25).
Where does the data actually come from?	• 2016/17 – 2018/19 National Survey for Wales (NSW), Welsh Government (WG) • 2003/04 – 2015 Welsh Health Survey (WHS), WG • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	• Persons, males and females • Selected age groups (persons only): - 16-44 - 45-64 • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).
When does it measure it?	• Health boards, local authorities: 2016/17 – 2018/19 (financial years) • Trend: 2003/04-2004/05 – 2014-15* (two year rolling percentages) • National characteristics: 2016/17 – 2018/19 (financial years) • Upper Super Output Areas (USOAs): 2010 - 2015 (calendar years) *Prior to 2007 WHS data were collected in financial years; from 2007 onwards WHS data were collected in calendar years.

What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities, USOAs • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Percentages and 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • The surveys asked adults to report their height and their weight. In order to define overweight or obesity, a measurement is required which allows for differences in weight due to height. The Body Mass Index (BMI) is calculated as weight (kg) divided by squared height (m^2)[1]. • BMI was calculated for all respondents, excluding pregnant women, with valid height and weight measurements[1]. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[2]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4. • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-10) codes. This is the same question as that used in the 2011 Census.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• In 2018/19, lifestyle questions were asked to a reduced sample of around 6,000. The 2016/17, 2017/18 and 2018/19 samples have been combined to provide a larger sample. This sample has been weighted to account for the difference in sample size. • Both the NSW and WHS have been used in the analysis of this indicator. Results aren't comparable between the NSW and WHS for a number of reasons. The primary reason is due to the change in the survey methodology[3]. • Data from the WHS has been used at local authority and USOA level since 2 years and 6 years of data respectively had to be aggregated to provide a sufficient sample size for a robust estimate. The WHS has also been used for the trend analysis since the NSW is in its third year and therefore not enough historic data is available. • Height and weight are self-reported, and there is evidence to show that some people tend to under report weight and/or over report height resulting in an underestimation of the prevalence of overweight and obesity[4]. • BMI does not distinguish between mass due to body fat and mass due to muscular physique, nor does it take account of the distribution of fat[1]. • Ethnicity may affect BMI.

	• The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability. • Further details regarding the National Survey for Wales and the Welsh Health Survey can be found in the data source guide in sections 4.5 and 4.8 respectively.
References	1. National Survey for Wales, 2018-19: Adult Lifestyle. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-06/national-survey-for-wales-april-2018-to-march-2019-adult-lifestyle-534.pdf [Accessed 27th November 2019] 2. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 3. Discontinuities in results for health-related lifestyle and general health between the Welsh Health Survey and National Survey for Wales. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/discontinuities-results-health-related-lifestyle-general-health-between-welsh-health-survey-national-survey-wales-2018.pdf [Accessed 25th November 2019] 4. Gorber SC et al. A comparison of direct vs. self-report measures for assessing height, weight and body mass index: a systematic review. *Obesity reviews* 2007; 8:307-326. Available at: http://onlinelibrary.wiley.com/doi/10.1111/j.1467-789X.2007.00347.x/abstract [Accessed 16th January 2018]

5.4.9. Older people in good health

What is being measured?	**Older people in good health**
How is this indicator defined?	The age specific rate of older people who reported being in good health.
Where does the data actually come from?	• 2017/18 – 2018/19 National Survey for Wales (NSW), Welsh Government (WG) • 2003/04 – 2015 Welsh Health Survey (WHS), WG • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	• Persons, males and females • Selected age groups (persons only): - 65-84 - 85+ • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).
When does it measure it?	• Health boards and local authorities: 2017/18 – 2018/19 (financial year)

	• Trend: 2003/04-2004/05 – 2014-15* (two year rolling percentages) • National characteristics: 2017/18 – 2018/19 (financial year) *Prior to 2007 WHS data were collected in financial years; from 2007 onwards WHS data were collected in calendar years.
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Percentages and 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • The NSW asked respondents to rate their own general health on a five-point scale ranging from very good to very bad. Responses rated as very good or good have been combined for this indicator. • The WHS adult questionnaire included a standard set of 36 health status questions known as SF-36 (version 2). SF-36 questions asked respondents about their own perception of their physical and mental health and the impact it has on their daily lives. The SF-36 questions include a question asking respondents to rate their own general health, asking respondents to rate their own general health on a five-point scale ranging from excellent to poor. Responses rated as good, very good and excellent have been combined for this indicator. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[1]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-10) codes. This is the same question as that used in the 2011 Census. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• Both the NSW and WHS have been used in the analysis of this indicator. Also how good health is defined differs between the surveys. Results aren't comparable where different surveys[2] and different definitions of good health have been used. • The WHS has been used for the trend analysis since the NSW is in its third year and therefore not enough historic data is available. • The NSW and WHS data is self-reported and may be affected by individuals' perception of their own health. • Non-responding adults were more likely than those who responded to the survey to be described by the household informant as having good general health.

	• The NSW and WHS do not include adults living in institutional settings such as care homes or nursing homes etc. It should be noted that people living in institutions are likely to be on average, in poorer health than those in private households. This should be kept in mind when considering results from this survey. • The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability. • Further details regarding the National Survey for Wales and the Welsh Health Survey can be found in the data source guide in sections 4.5 and 4.8 respectively.
References	1. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 2. Discontinuities in results for health-related lifestyle and general health between the Welsh Health Survey and National Survey for Wales. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/discontinuities-results-health-related-lifestyle-general-health-between-welsh-health-survey-national-survey-wales-2018.pdf [Accessed 25th November 2019]

5.4.10. Older people free from limiting long term illness

What is being measured?	**Older people free from limiting long term illness**
How is this indicator defined?	The age specific rate of older people who responded that they are free from limiting long term illness.
Where does the data actually come from?	• 2017/18 - 2018/19 National Survey for Wales (NSW), Welsh Government (WG) • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	• Persons, males and females • Selected age groups (persons only): - 65-84 - 85+
When does it measure it?	• Health boards, local authorities and national characteristics: 2017/18 – 2018/19 (financial year)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Percentages and 95 per cent confidence intervals were calculated using the default method in Stata for survey data.

	• Adults that are free from a limiting long term illness are respondents who reported that their day to day activities were not limited at all by a health problem or disability. • The NSW asked adults do they have any physical or mental health conditions or illnesses lasting or expected to last 12 months or more. For those that answered 'yes', they were asked if any of their conditions or illnesses reduce their ability to carry-out day-to-day activities either 'a lot', 'a little' or 'not at all'. • Further information on the methods and definitions can be found here: https://gov.wales/sites/default/files/statistics-and-research/2019-07/national-survey-for-wales-april-2018-to-march-2019-technical-report_0.pdf • Rural and Urban definitions were determined from the Office for National Statistics (ONS) Rural Urban Classification 2011[1]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• The NSW data is self-reported and may be affected by individuals' perception of their own health. • Further details regarding the National Survey for Wales and the Welsh Health Survey can be found in the data source guide in sections 4.5 and 4.8 respectively.
References	1. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 2. Discontinuities in results for health-related lifestyle and general health between the Welsh Health Survey and National Survey for Wales. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/discontinuities-results-health-related-lifestyle-general-health-between-welsh-health-survey-national-survey-wales-2018.pdf [Accessed 25th November 2019]

5.4.11. Life satisfaction among older people

What is being measured?	**Life satisfaction among older people**
How is this indicator defined?	The age specific rate of respondents aged 65 and over who rate their satisfaction with their life as 7 out of 10 or higher.

Where does the data actually come from?	• National Survey for Wales (NSW), Welsh Government (WG) • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	• Persons, males and females • Selected age groups (persons only): - 65-84 - 85+ • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).
When does it measure it?	• Health boards, local authorities: 2017/18 – 2018/19 (financial year) • National characteristics: 2017/18 – 2018/19 (financial year)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Percentages and 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[1]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-10) codes. This is the same question as that used in the 2011 Census. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• The NSW is a major study which involves conducting more than 10,000 interviews with a randomly selected sample of people aged 16 and over across Wales per year[2]. • A large randomly selected sample with allows analysis by population sub-groups and local authority areas and for the results to be as representative as possible of the people in Wales, including harder-to-reach groups such as younger working people[3]. • As the survey is based on self-reported data, the results are prone to respondent bias i.e. people may under or overestimate their behaviour to give a more favourable response.

	• The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability. • Further information about the NSW can be found in the data source guide in section 4.5.
References	1. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 2. National Survey for Wales, 2016-17 onwards, Quality Report. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/national-survey-wales-quality-report-2016-17-onwards.pdf [Accessed 20th March 2019] 3. National Survey for Wales, 2018-19 Technical Report. July 2019. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-07/national-survey-for-wales-april-2018-to-march-2019-technical-report_0.pdf [Accessed 27th November 2019]

5.4.12. Older people of healthy weight

What is being measured?	**Older people of healthy weight**
How is this indicator defined?	The age specific rate of older age adults (aged 65+) who reported having a healthy weight (Body Mass Index (BMI) between 18.5 and 25).
Where does the data actually come from?	• 2016/17 - 2018/19 National Survey for Wales (NSW), Welsh Government (WG) • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	• Persons, males and females • Selected age groups (persons only): - 65-84 - 85+ • Adults who answered yes to being limited a lot by illness or disability (used as a proxy measure for disability).
When does it measure it?	• Welsh health boards, local authorities: 2016/17 – 2018/19 (financial years) • National characteristics: 2016/17 – 2018/19 (financial years)
What geographical area does it cover?	• Wales, Welsh health boards • Rural and urban areas in Wales • National deprivation fifths (WIMD)

How is it calculated?	• Percentages and 95 per cent confidence intervals were calculated using the default method in Stata for survey data. • The surveys asked adults to report their height and their weight. In order to define healthy weight, a measurement is required which allows for differences in weight due to height. The Body Mass Index (BMI) is calculated as weight (kg) divided by squared height (m^2)[1]. • BMI was calculated for all respondents, excluding pregnant women, with valid height and weight measurements[1]. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[2]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4. • This analysis looked at those who were limited a lot by illness or disability. The questionnaire asked adults if their day-to-day activities were limited because of a health problem or disability lasting (or expected to last) at least 12 months. They were able to answer 'yes, limited a lot', 'yes, limited a little' or 'no'. This analysis specifically looked at those who are 'limited a lot by illness or disability'. Adults were asked to include problems due to old age. If responding positively, they were asked for the main cause of this limitation. Answers were coded according to the International Classification of Diseases 10th revision (ICD-10) codes. This is the same question as that used in the 2011 Census.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• In 2018/19, lifestyle questions were asked to a reduced sample of around 6,000. The 2016/17, 2017/18 and 2018/19 samples have been combined to provide a larger sample. This sample has been weighted to account for the difference in sample size. • Height and weight are self-reported, and there is evidence to show that some people tend to under report weight and/or over report height resulting in an underestimation of the prevalence of overweight and obesity[3] • BMI does not distinguish between mass due to body fat and mass due to muscular physique, nor does it take account of the distribution of fat[1]. • Ethnicity may affect BMI. • The survey question used in this analysis asks about illness and disability. This has been used as a proxy measure for disability, in the absence of a specific question relating to disability. • Further details regarding the National Survey for Wales can be found in the data source guide in section 4.5.
References	1. National Survey for Wales, 2018-19: Adult Lifestyle. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-06/national-survey-for-wales-april-2018-to-march-2019-adult-lifestyle-534.pdf [Accessed 27th November 2019] 2. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-

	method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 16th January 2018] 3. Gorber SC et al. A comparison of direct vs. self-report measures for assessing height, weight and body mass index: a systematic review. *Obesity reviews* 2007; 8:307-326. Available at: http://onlinelibrary.wiley.com/doi/10.1111/j.1467-789X.2007.00347.x/abstract [Accessed 16th January 2018] 4. Discontinuities in results for health-related lifestyle and general health between the Welsh Health Survey and National Survey for Wales. Available at: https://gov.wales/sites/default/files/statistics-and-research/2019-02/discontinuities-results-health-related-lifestyle-general-health-between-welsh-health-survey-national-survey-wales-2018.pdf [Accessed 25th November 2019]

5.4.13. Hip fractures among older people

What is being measured?	**Hip fractures amongst 65+ year olds**
How is this indicator defined?	The European age-standardised rate per 100,000 of emergency hospital admissions in those aged 65 and over where the admitting episode has a primary diagnosis of hip fracture.
Where does the data actually come from?	• Numerator: Patient Episode Database for Wales (PEDW), NHS Wales Informatics Service (NWIS) • Denominator: Mid-year population estimates, Office for National Statistics (ONS) • Welsh Index of Multiple Deprivation (WIMD) 2014, Welsh Government (WG) • Rural/urban classifications (2011), Office for National Statistics (ONS)
Who does it measure?	Persons, males and females aged 65 and over
When does it measure it?	• Trend: 2009/10 – 2018/19 (financial years) • Wales, health boards, local authorities: 2018/19 (financial years) • Upper Super Output Areas (USOAs): 2016/17-2018/19 (financial years) • Middle Super Output Areas (MSOAs): 2009/10 – 2018/19 (financial years) • National characteristics: 2018/19 (financial years)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities, USOAs, MSOAs • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Admissions in those aged 65 and over where the admitting episode has a primary diagnosis of one of the following International Classification of Diseases 10th Revision (ICD-10)

	codes: S720, S721 or S722, divided by the number of persons aged 65 and over, as a rate per 100,000. • European age-standardised rates per 100,000 population were calculated using the 2013 European standard population[1]. • Confidence intervals were calculated using a method proposed by Dobson et al[2]. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[3]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• This analysis is admissions-based; therefore, multiple spells are counted where an individual is admitted more than once. The data does not include emergency transfers. This gives the total number of hip fracture admissions in each local authority and health board and not the number of patients. • The data reflects a subset of the population and one aspect of accident and injury. It is expected that hip fractures will be admitted to hospital, but some fractures may be unrelated to falls (e.g. road traffic accidents). • ICD-10 codes: - S72.0: Fracture of neck of femur (fracture of hip NOS) - S72.1: Fracture of neck of femur (pertrochanteric fracture) - S72.2: Fracture of neck of femur (subtrochanteric fracture) • Local knowledge may aid interpretation of this data and would be best placed to identify any potential data quality issues, such as differences in coding procedures. • There is an issue with diagnostic coding in two of the health boards. In Cardiff and Vale UHB approximately 1 in 12 (2011/12) emergency admission records for patient aged 65+ did not have a primary diagnosis. In Aneurin Bevan UHB approximately 1 in 12 (2017/18) and 1 in 16 (2018/19) emergency admission records for patient aged 65+ did not have a primary diagnosis. Counts of specific diagnoses will be underestimated, but to an unknown extent therefore caution should be exercised when interpreting trends for these health boards. • Please note 6% of Aneurin Bevan emergency admissions have missing primary diagnoses in 2018/19, therefore caution should be taken when interpreting rates of hip fractures for this area. • Further details regarding the Patient Episode Database for Wales can be found in the data source guide in section 4.6.
References	1. Revised European Standard Population 2013. Available at: http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/revised-european-standard-population-2013--2013-esp-/index.html [Accessed 17th November 2017] 2. Dobson A.J. et al Confidence intervals for weighted sums of Poisson parameters. *Stat Med*. 1991; 10(3):457-462. 3. Office for National Statistics. 2011 rural/urban classification. Available at:

	http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 17th November 2017]

5.4.14. Premature deaths from key non communicable diseases

What is being measured?	**Premature deaths from key non communicable diseases**
How is this indicator defined?	The European age-standardised rate of deaths from key non communicable diseases per 100,000 population in persons aged 30-70 years.
Where does the data actually come from?	• Numerator: Public Health Mortality (PHM), Office for National Statistics (ONS) • Denominator: Mid-year population estimates, ONS • Welsh Index of Multiple Deprivation (WIMD) 2014, WG • Rural/urban classifications (2011), ONS
Who does it measure?	Persons, males and females aged 30-70
When does it measure it?	• Trend: 2007/09 – 2016/18 (three year rolling rate, calendar years) • Health boards, local authorities: 2016 – 2018 (calendar years) • Upper Super Output Areas (USOAs), Middle Super Output Areas (MSOAs): 2016 – 2018 (calendar years) • National characteristics: 2016 – 2018 (calendar years)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities, USOAs, MSOAs • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Counts of deaths with an underlying cause of death between International Classification of Diseases 10th Revision (ICD-10) codes I00-I99, C00-C97 (excl C44), E10-E14, J30-J99 registered between 2007-09 and 2016-18 (rolling three years) were extracted from the PHM dataset for persons, male and females aged 30-70. • ICD-10 code groups: - I00 – I99 Diseases of the circulatory system - C00 – C97 Malignant Neoplasms except C44 - E10 – E14 Diabetes mellitus - J30 – J99 Diseases of the respiratory system except infectious • European age-standardised rates per 100,000 population were calculated using the 2013 European standard population[1]. • 95 per cent confidence intervals were calculated using a method proposed by Dobson et al[2]. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[3]. For more details regarding urban and rural classifications in Wales see section 3.5.

	• This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• There have been two recent revisions to the manner in which the text about causes of death on death certificates are translated by the Office for National Statistics into International Classification of Diseases codes. These changes mean that unrevised data may not be comparable across years. The main change relates to the rules that govern which cause of death detailed on the death certificate is selected as the underlying cause. In general, the impact of these changes can be quantified and the data can be adjusted through the use of 'comparability ratios' which are used to adjust the number of deaths and to calculate adjusted mortality rates. This indicator has not used comparability ratios. For more details on comparability ratios see Public Health England (PHE) guidance available at: https://fingertips.phe.org.uk/documents/Comparability%20ratios%20May%202016.xlsx • Details on deaths from non-communicable disease can be found on the World Health Organization website: http://www.who.int/mediacentre/factsheets/fs355/en/ • Further details on accuracy, completeness of the data and any warnings regarding Public Health Mortality and Mid-Year population estimates can be found in the data source guides, please see section 4.7 for the PHM data source information and section 4.3 for the Mid-Year population estimates information.
References	1. Further information on the 2013 European Standard Population is available at: http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/revised-european-standard-population-2013--2013-esp-/index.html [Accessed 17th November 2017] 2. Dobson A.J. et al. Confidence intervals for weighted sums of Poisson parameters. *Stat Med* 1991; 10(3):457-462. 3. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 17th November 2017]

5.4.15. Deaths from injuries

What is being measured?	**Deaths from injuries**
How is this indicator defined?	The European age-standardised and age-specific rate of deaths from injuries per 100,000 population.
Where does the data actually come from?	• Numerator: Public Health Mortality (PHM), Office for National Statistics (ONS) • Denominator: Mid-year population estimates, ONS

	• Welsh Index of Multiple Deprivation (WIMD) 2014: Welsh Government (WG) • Rural/urban classifications (2011), ONS
Who does it measure?	• Persons, males and females (all ages) • Deaths from injuries in age groups (persons only): - <18 years - 18-44 - 18-64 - 45-64 - 65-84 - 65+ - 85+
When does it measure it?	• Trend: 2007/09 – 2016/18 (three year rolling, calendar years) • Health boards, local authorities: 2016 – 2018 (calendar years) • Upper Super Output Areas (USOAs): 2016 – 2018 (calendar years) • National characteristics: 2016 – 2018 (calendar years)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities, USOAs • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Counts of deaths where the underlying cause of death is an injury (International Classification of Diseases 10th Revision (ICD-10) codes V01-Y98, excluding Y10-Y34), registered between 2007/09 and 2016/18 (rolling three years) were extracted from the PHM dataset. The data was extracted for persons all ages. • European age-standardised rates per 100,000 population were calculated using the 2013 European standard population[1]. • 95 per cent confidence intervals were calculated using a method proposed by Dobson et al[2]. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[3]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• There have been two recent revisions to the manner in which the text about causes of death on death certificates are translated by the ONS into ICD-10 codes. These changes mean that unrevised data may not be comparable across years. The main change relates to the rules that govern which cause of death detailed on the death certificate is selected as the underlying cause. In general, the impact of these changes can be quantified and the data can be adjusted through the use of 'comparability ratios' which are used to adjust the number of deaths and to calculate adjusted mortality rates. This indicator has not used comparability ratios. For more details on comparability ratios see Public Health England (PHE) guidance available at:

	https://fingertips.phe.org.uk/documents/Comparability%20ratios%20May%202016.xlsx • Further details on accuracy, completeness of the data and any warnings regarding Public Health Mortality and Mid-Year population estimates can be found in the data source guides, please see section 4.7 for the PHM data source information and section 4.3 for the Mid-Year population estimates information. • Details on the implementation of ICD-10 for mortality data in England and Wales from January 2001. Available at: http://www.ons.gov.uk/ons/rel/hsq/health-statistics-quarterly/no--8--winter-2000/implementation-of-icd-10-for-mortality-data-in-england-and-wales-from-january-2001.pdf • Details on deaths from injuries can be found on the Office for National Statistics website: https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/datasets/avoidablemortalityinenglandandwalesreferencetable1
References	1. Revised European Standard Population 2013. Available at: http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/revised-european-standard-population-2013--2013-esp-/index.html [Accessed 17th November 2017] 2. Dobson A.J. et al. Confidence intervals for weighted sums of Poisson parameters. *Stat Med* 1991; 10(3):457-462. 3. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 17th November 2017]

5.4.16. Deaths from road traffic injuries

What is being measured?	**Deaths from road traffic injuries**
How is this indicator defined?	The European age-standardised rate and age-specific rate of deaths from transport accidents or from sequelae of transport accidents per 100,000 population.
Where does the data actually come from?	• Numerator: Public Health Mortality, (PHM) Office for National Statistics (ONS) • Denominator: Mid-year population estimates, ONS • Welsh Index of Multiple Deprivation (WIMD) 2014, Welsh Government (WG) • Rural/urban classifications (2011), ONS

Who does it measure?	• Persons, males and females (all ages) • Deaths from road traffic injuries in age groups (persons only): - <18 years - 18-44 - 18-64 - 45-64 - 65-84 - 65+ - 85+
When does it measure it?	• 2009 – 2018 (calendar years)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities • Rural and urban areas in Wales • National deprivation fifths (WIMD)
How is it calculated?	• Counts of deaths with an underlying cause of death with selected International Classification of Diseases 10th Revision (ICD-10) codes (see below) registered between 2007 and 2016 were extracted from the PHM dataset. The data was extracted for all persons and all ages. • ICD-10 codes: - V01 – V99 Transport accidents - Y85 Sequelae of transport accidents • European age-standardised rates per 100,000 population were calculated using the 2013 European standard population[1]. • 95 per cent Confidence intervals were calculated using a method proposed by Dobson et al[2]. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[3]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• There have been two recent revisions to the manner in which the text about causes of death on death certificates are translated by the Office for National Statistics into ICD-10 codes. These changes mean that unrevised data may not be comparable across years. The main change relates to the rules that govern which cause of death detailed on the death certificate is selected as the underlying cause. In general, the impact of these changes can be quantified and the data can be adjusted through the use of 'comparability ratios' which are used to adjust the number of deaths and to calculate adjusted mortality rates. This indicator has not used comparability ratios. For more details on comparability ratios see Public Health England (PHE) guidance available at: https://fingertips.phe.org.uk/documents/Comparability%20ratios%20May%202016.xlsx • Further details on accuracy, completeness of the data and any warnings regarding Public Health Mortality and Mid-Year population estimates can be found in the data source guides,

	please see section 4.7 for the PHM data source information and section 4.3 for the Mid-Year population estimates information.
References	1. Revised European Standard Population 2013. Available at: http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/revised-european-standard-population-2013--2013-esp-/index.html [Accessed 17th November 2017] 2. Dobson A.J. et al. Confidence intervals for weighted sums of Poisson parameters. *Stat Med*. 1991; 10(3):457-462. 3. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 17th November 2017]

5.4.17. Suicides

What is being measured?	**Suicides**
How is this indicator defined?	The European age-standardised rate and age-specific rate of deaths from intentional self-harm aged 10+ and from intentional self-harm or injury/poisoning of undetermined intent aged 15+ per 100,000 population.
Where does the data actually come from?	• Numerator: Public Health Mortality, Office for National Statistics (ONS) • Denominator: Mid-year population estimates, ONS • Welsh Index of Multiple Deprivation (WIMD) 2014: Welsh Government (WG) • Rural/urban classifications (2011), ONS
Who does it measure?	• Persons, males and females (aged 10+ for intentional self-harm and 15+ for intentional self-harm or injury/poisoning of undetermined intent) • Suicides in age groups (persons only): - 10-17 years - 18-44 - 18-64 - 45-64 - 65-84 - 65+ - 85+
When does it measure it?	• Trend: 2005-09 - 2014-18 (5 year rolling, calendar years) • Health boards, local authorities: 2014 – 2018 (calendar years)
What geographical area does it cover?	• Wales, Welsh health boards, Welsh local authorities, USOAs. • Rural and urban areas in Wales. • National deprivation fifths (WIMD).
How is it calculated?	• Counts of deaths with an underlying cause of death with selected International Classification of Diseases 10th Revision (ICD-10) codes registered between 2005-09 and 2014-18

	(rolling five years) were extracted from the PHM dataset. The data was extracted for all persons aged 10+ (intentional self-harm) and persons aged 15+ (intentional self-harm or injury/poisoning of undetermined intent). • ICD 10 codes: - Intentional self-harm (X60-X84) - Event of undetermined intent (Y10-Y34) (Y339 excluded before 2006) • European age-standardised rates per 100,000 population were calculated using the 2013 European standard population[1]. • 95 per cent confidence intervals were calculated using a method proposed by Dobson et al[2]. • Rural and Urban definitions were determined from the ONS Rural Urban Classification 2011[3]. For more details regarding urban and rural classifications in Wales see section 3.5. • This analysis uses national deprivation fifths. For more details regarding WIMD see section 4.9 and for more details regarding the interpretation of WIMD see section 3.4.
How accurate and complete will the data be for this indicator? Are there any problems, notes for interpretation or warnings with the data in relation to this indicator?	• In 2016, the National Statistics definition of suicide has been modified to include deaths from intentional self-harm in 10 to 14 year old children in addition to deaths from intentional self-harm and events of undetermined intent in people aged 15 and over. • The number of suicides in Wales are low and therefore caution needs to be used when interpreting the rates due to issues with random variation. In recent years, some areas experienced a rise in the rate of suicides and this could be attributable to a rise in suicide registrations in 2011. This rise could be partly attributed to training delivered by the ONS to coders and the Coroner's Office to try and reduce the number of "hard-to-code" narrative verdicts – this is where the coroner gives no indication of intent and the death has to be coded as accidental (i.e. not suicide). The number of hard-to-code narrative verdicts had risen from 2 in Wales in 2001 to 147 in 2010, but following the intervention by ONS, there were 75 such verdicts in 2011. It may therefore be that a higher number of suicides were recorded in 2011 due to better coding, rather than due to an actual rise in the incidence of suicide. Further information regarding the potential impact of narrative verdicts on suicide. statistics can be found on this ONS webpage: http://webcache.googleusercontent.com/search?q=cache:EZcLQpvTt90J:www.ons.gov.uk/ons/rel/hsq/health-statistics-quarterly/spring-2011/narrative-verdicts-and-their-impact-on-mortality-statistics-in-england-and-wales.pdf+&cd=1&hl=en&ct=clnk&gl=uk • There have been two recent revisions to the manner in which the text about causes of death on death certificates are translated by the Office for National Statistics into International Classification of Diseases codes. These changes mean that unrevised data may not be comparable across years. The main change relates to the rules that govern which cause of death detailed on the death certificate is selected as the underlying cause. In general, the impact of these changes can be quantified and the data can be adjusted through the

	use of 'comparability ratios' which are used to adjust the number of deaths and to calculate adjusted mortality rates. Comparability ratios have not been used to adjust the number of deaths to account for coding changes between 2010 and 2011 and between 2013 and 2014. For more details on comparability ratios see Public Health England (PHE) guidance available at: https://fingertips.phe.org.uk/documents/Comparability%20ratios%20May%202016.xlsx • Further details on accuracy, completeness of the data and any warnings regarding Public Health Mortality and Mid-Year population estimates can be found in the data source guides, please see section 4.7 for the PHM data source information and section 4.3 for the Mid-Year population estimates information.
References	1. Revised European Standard Population 2013. Available at: http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/revised-european-standard-population-2013--2013-esp-/index.html [Accessed 17th November 2017] 2. Dobson A.J. et al. Confidence intervals for weighted sums of Poisson parameters. *Stat Med*. 1991; 10(3):457-462. 3. Office for National Statistics. 2011 rural/urban classification. Available at: http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/2011-rural-urban/index.html [Accessed 17th November 2017]

6. Glossary

6.1 Abbreviations

APS	Annual Population Survey
BASCD	British Association for the Study of Community Dentistry
BMI	Body Mass Index
CDSC	Communicable Disease Surveillance Centre
CI	Confidence Interval
CMP	Child Measurement Programme
COVER	Coverage of Vaccination Evaluation Rapidly
CV	Coefficient of Variation
DEFRA	Department for Environment, Food and Rural Affairs
EASR	European Age-Standardised Rate
FAS	Family Affluence Scale
GP	General Practitioner
HB	Health Board
HBSC	Health Behaviour in School-aged Children
HESA	Higher Education Statistics Agency
HHSRS	Housing Health and Safety Systems
Hib	Haemophilus influenza type b
HLE	Healthy Life Expectancy
ICD-10	International Classification of Diseases 10th Revision
LA	Local Authority
LE	Life Expectancy
LFS	Labour Force Survey
LHO	London Health Observatory
LLWR	Lifelong Learning Wales Record
LSOA	Lower Super Output Area
Men C	Meningococcal C
MMR	Measles, Mumps and Rubella
MSOA	Middle Super Output Area
MYE	Mid-Year Population Estimate
NCCHD	National Community Child Health Database
NEET	Not in Education, Employment or Training
NEWBES	Non English/Welsh Based Education System
NHS	National Health Service
NI	National Indicator
NSW	National Survey for Wales
NWIS	NHS Wales Informatics Service
ONS	Office for National Statistics
OPCS	Office of Population Censuses and Surveys
PEDW	Patient Episode Database for Wales
PHE	Public Health England
PHM	Public Health Mortality
PHW	Public Health Wales
PLASC	Pupil Level Annual School Census
PRU	Public Referral Unit
RUC2011	Rural Urban Classification 2011

SEPHO	South East Public Health Observatory
SII	Slope Index of Inequality
SFR	Statistical First Release
UHB/THB	University/Teaching Health Board
USOA	Upper Super Output Area
VPDP	Vaccine Preventable Disease Programme
WED	Welsh Examinations Database
WG	Welsh Government
WHO	World Health Organization
WHS	Welsh Health Survey
WIMD	Welsh Index of Multiple Deprivation
WOHIU	Welsh Oral Health Information Unit

6.2 Definitions

Age-standardised rate

- Age-standardisation allows comparison of rates across different populations while taking account of the different age structures of those populations. Failure to take account of differing age structures can be very misleading when comparing rates in different populations.

European age-standardised rate (EASR)

- The European age-standardised rate represents the overall rate you would get if the population had the same age-structure as a theoretical standard European population (direct age-standardisation). In order to calculate this we apply the rates which occur in each age band to the new (standard) population structure. The measure only allows for comparison between rates which have been standardised; it is not a proportion or risk of an event occurring and does not, of itself, involve a comparison with rates across Europe. See *age-standardised rate* for further details.

Family affluence scale (FAS)

- The HBSC Family Affluence Scale (FAS) measure is based on a set of questions on the material conditions of the households in which young people live. The questions are non-sensitive straightforward and cover car ownership and overcrowding (measured through bedroom occupancy) holidays and home computers. Young people are classified according to the summed score of the items, with the overall score being recorded to give values of low, middle and high family affluence.

Fifths of deprivation

- Geographical areas (LSOAs) are ranked from highest to lowest by deprivation score and then split into five bands of similar size, ranging from least deprived to most deprived fifth.

Health board

- Health boards are the NHS bodies in Wales responsible for the health of the population within their geographical area. This includes planning, designing, developing and securing the delivery of primary, community, in-hospital care services and specialised services. There are seven health boards in Wales, changed from 22 local health boards and seven NHS Trusts previously.

Healthy life expectancy (HLE) at birth

- Healthy life expectancy at birth is an estimate of the average number of years newborn babies could expect to live in good health, if the then current mortality rates and prevalence of good and very good health applied throughout their lives.

Life expectancy (LE) at birth

- Life expectancy at birth is an estimate of the average number of years newborn babies could expect to live if current age-specific mortality rates continue to apply.

Local Authority (LA)

- An organisation that is officially responsible for all the public services and facilities in a particular geographical area

Lower Super Output Area (LSOA)

- Defined geographical area based on Census output areas with an average of 1500 persons per LSOA. There are 1909 LSOAs in Wales, and the number of LSOAs can vary widely between health boards.

Mid-year estimates

- Annual ONS estimates of the resident population, based on the Census and taking into account population change (births, deaths and migration).

Middle Super Output Area (MSOA)

- Defined geographical area based on Census output areas with an average of 7500 persons per MSOA. There are 410 MSOAs in Wales, and the number of MSOAs can vary between health boards.

National Indicator

- Indicators defined by the Well-being of Future Generations (Wales) Act 2015.

Outcome measure

- An outcome measure in this report refers to an indicator to assess the impact of a health-related behaviour e.g. death due to smoking is an outcome of smoking behaviour.

Public Health Wales NHS Trust

- Public Health Wales was established as an NHS Trust on 1 October 2009. The Trust incorporates the functions and services previously provided by the National Public Health Service for Wales, the Wales Centre for Health, the Welsh Cancer Intelligence and Surveillance Unit and Screening Services Wales

Slope Index of Inequality (SII)

- The Slope Index of Inequality is a single statistic that summarises the extent of health inequalities within an area. It is an estimate of the actual gap in life expectancy, healthy life expectancy or disability-free life expectancy between the least and most deprived areas, taking into account the life expectancies of the fifths in between.

Upper Super Output Area (USOA)

- Defined geographical area based on Census output areas with an average of around 30,000 persons per USOA. There are 94 USOAs in Wales, and the number of USOAs varies between health boards.

Welsh Index of Multiple Deprivation (WIMD)

- WIMD is a measure of multiple deprivation at lower super output area level. A WIMD deprivation score is calculated using eight domains i.e. income, employment, health, education, access to services, housing, physical environment and community safety.

7. Appendix A– Indicator map

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

Public Health Outcomes Framework reporting tool *Indicator map*

✓ = Data available
✓ = Data have been updated since last refresh
NI = National indicator
* = Indicator reports using pre-April 2019 health board boundaries

			Local and health board			Characteristics					Sub local authority			Evidence summary
			Local authority	Health Board	Trend	Deprivation/FAS	Rural/Urban	Sex	Age breakdown	Disability	USOA	MSOA	LSOA	
Overarching outcomes	1	**Life expectancy at birth**	✓	✓	✓	✓	✓	✓			✓	✓		
	2	Healthy life expectancy at birth	✓	✓				✓						
	3a	Mental well-being among children and young people NI				Not currently available								✓
	3b	**Mental well-being among adults NI**	✓	✓		✓	✓	✓	✓	✓				✓
	4	The gap in life expectancy at birth between the most and least deprived	✓	✓				✓						
	5	The gap in healthy life expectancy at birth between the most and least deprived NI				Not currently available								
	6a	Gap in mental well-being among children and young people				Not currently available								
	6b	The gap in mental well-being between the most and least deprived among adults				Not currently available								
Living conditions	7	Children living in poverty	✓									✓	✓	
	8	**Young children developing the right skills NI**						✓						
	9	School leavers with skills and qualifications NI	✓	✓*		✓	✓	✓			✓	✓		
	10	School leavers with essential literacy and numeracy skills				Not currently available								
	11	**People able to afford everyday goods and activities NI**	✓	✓		✓	✓							
	12	**People in education, employment or training NI**			✓			✓		✓				
	13	**Gap in employment rate for those with long term health condition**	✓	✓		✓	✓	✓	✓					✓
	14	**A sense of community NI**	✓	✓		✓	✓	✓	✓	✓				
	15	People who volunteer NI	✓	✓		✓	✓	✓	✓	✓				
	16	People feeling lonely NI	✓	✓		✓	✓	✓	✓	✓				✓
	17	Quality of housing NI	✓	✓										
	18	Quality of the air we breathe NI	✓	✓*	✓*						✓	✓		
Ways of living	19	**Physical activity in adolescents**	✓	✓		✓		✓						✓
	20	**Adolescents who smoke**	✓	✓		✓		✓						✓
	21	**Adolescents using alcohol**	✓	✓		✓		✓						
	22	**Adolescents drinking sugary drinks once a day or more**	✓	✓		✓		✓						✓
	23	**Adults eating five fruit or vegetable portions a day**	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	24	**Adults meeting physical activity guidelines**	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	25	**Adults who smoke**	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	26	**Adults drinking above guidelines**	✓	✓	✓	✓	✓	✓	✓	✓	✓			
	27	**Teenage pregnancies**	✓	✓	✓						✓			✓
	28	Smoking in pregnancy		✓*										✓
	29	**Breastfeeding at 10 days**	✓	✓		✓	✓							
	30	**Vaccination rates at age 4**	✓	✓	✓	✓	✓				✓	✓		✓
Life-course	31	**Low birth weight NI**	✓	✓	✓	✓	✓	✓			✓	✓	✓	
	32	Children age 5 of healthy weight	✓	✓	✓	✓	✓	✓			✓	✓		✓
	33	**Adolescents of healthy weight**		✓		✓		✓						✓
	34	Tooth decay among 5 year olds	✓	✓*		✓	✓							✓
	35a	**Working age adults in good health**	✓	✓	✓	✓	✓	✓	✓	✓	✓			
	36a	**Working age adults free from limiting long term illness**	✓	✓		✓	✓	✓	✓					
	37a	**Life satisfaction among working age adults**	✓	✓		✓	✓	✓	✓	✓				
	38a	**Working age adults of healthy weight**	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
	35b	**Older people in good health**	✓	✓	✓	✓	✓	✓	✓	✓				
	36b	**Older people free from limiting long term illness**	✓	✓		✓	✓	✓	✓					
	37b	**Life satisfaction among older people**	✓	✓		✓	✓	✓	✓	✓				
	38b	**Older people of healthy weight**	✓	✓		✓	✓	✓	✓	✓				
	39	**Hip fractures among older people**	✓	✓	✓	✓	✓	✓			✓	✓		
	40	**Premature death from key non communicable diseases**	✓	✓	✓	✓	✓	✓			✓	✓		
	41	**Deaths from injuries**	✓	✓	✓	✓	✓	✓	✓		✓			
	42	**Deaths from road traffic injuries**	✓	✓		✓	✓	✓	✓					
	43	**Suicides**	✓	✓	✓	✓	✓	✓	✓					✓

Public Health Outcomes Framework
Fframwaith Canlyniadau Iechyd y Cyhoedd

Llywodraeth Cymru
Welsh Government