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2017

Health and its determinants in Wales

Informing strategic planning

Report

Introduction

The **Health and its determinants in Wales** report provides an overview of the health and well-being of the population of Wales. It outlines the main areas of health need and presents the complex picture of health in Wales. It demonstrates the gains made but it also highlights the significant challenges faced both now and in the future.

This report aims to describe the epidemiology of health and its determinants in Wales in a way that can inform strategic public health planning into the future. Its initial purpose was to inform long term strategic planning of Public Health Wales, but we hope it will also be of value to others involved in strategic planning across Wales. The report provides high level information and illustrative examples covering broad themes. It uses a common currency for health and risk factors, the burden of disease, to assist with consideration of relative priorities. It also provides information on wider determinants of health with a particular focus on children. The report includes international comparisons, focusing on what those countries with the best outcomes achieve, and provides both past and projected future trends.

The **Health and its determinants in Wales** report is accompanied by an **infographic**, a **summary** containing the key messages and conclusions of the report, and a **technical guide** providing further guidance on how to interpret the data, any limitations, and the methods and data sources used.

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- **LE – life expectancy** is an estimate of the average number of years a person can expect to live based on the year of their birth, their current age and other demographic factors including gender. The estimate assumes that current mortality rates for the area in which they were born applied throughout their lives.
- **HLE – healthy life expectancy** is the average number of years a person can 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.
- **YLL – years of life lost**, the number of years of life lost due to premature mortality.
- **YLD – years lived with disability**, the number of incident cases in the period is multiplied by the average duration of the disease and a weight factor that reflects the severity of the disease on a scale from 0 (perfect health) to 1 (dead).
- **DALYs – disability-adjusted life years**, the sum of years of life lost (YLL) and years live with disability (YLD). One DALY can be thought of as one lost year of "healthy" life. The sum of these DALYs across the population can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability.

Comparators

Where comparative data are available, the **UK nations, Republic of Ireland, Iceland and Sweden** have been used. **England, Scotland, Northern Ireland and Republic of Ireland** have been used as they have broadly similar demographic and social characteristics to Wales.

In 2015, the UN General Assembly established the Sustainable Development Goals (SDGs) and using 33 health-related SDG indicators, 188 countries were ranked from best to worst. **Iceland (1st) and Sweden (3rd)** were chosen as nations which also shared similar demographic characteristics to the UK (5th).

Reference: GBD 2015 SDG Collaborators (2016), Measuring the health-related Sustainable Development Goals in 188 countries: a baseline analysis from the Global Burden of Disease Study 2015. *Lancet*. 388, 1813–50.

Deprivation

The Welsh Index of Multiple Deprivation (WIMD) 2014 is an **area-based** rather than individual-based measure. It must therefore 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.

Global Burden of Disease

The Global Burden of Disease study 2016 (GBD, Global Health Data Exchange) is a data source that provides internationally comparable burden of diseases estimates.

- The methods allow for differing availability and quality of data.
- The study provides modelled **estimates**, not direct measurements, and the results should therefore not be compared to any direct measures or alternative estimates reported for Wales.
- Uncertainty in any of the raw data or parameters used in the model will result in imprecision in the estimates themselves.
- The rankings provided are only an **indication** of the relative contribution of different risk factors to the burden of disease and the certainty of the ranking will depend on the strength of underlying evidence.
- The methods used to produce DALYs in the Global Burden of Disease reports produced before 2010 has been criticised for favouring younger adults and immediate years of life gained; more recent reports use a method that has rectified this.

Global Burden of Disease contd.

The Global Burden of Disease study has identified eight risk categories:

- Social, cultural, economic
- **Behavioural**
- **Metabolic**
- Health intervention
- Microbiome and host
- Pathogens
- **Environmental or occupational**
- Genes

Of these, only the **behavioural**, **environmental or occupational**, and **metabolic** risk categories have been investigated which account for 84 individual risks.

Therefore, only a proportion of total DALYs can be attributed to GBD identified risk factors.

- The sum of DALYs from individual risks is **higher** than the total number of DALYs attributable to a particular risk category. This is because DALYs can be attributed to more than one risk factor. For example, a single person could be affected by poor diet and alcohol use but these will only count once towards the total attributable DALYs for 'behavioural risks'.

Projections

- Projections are **estimates** based on various assumptions about the future.
- Projections assume the population projections are an accurate reflection of future population change.
- Short term projections are reasonable indications of the direction of travel over the next three years **if** the pattern in the observed data persists.
- Longer term projections must be viewed with extreme caution due to the likelihood that observed past trends will change.
- The Daffodil system applies Wales-level prevalence figures from the 2012 WHS to projected population estimates; they do not take past trends into account.

1. Demography

2. Life expectancy
3. Burden of disease
4. Health behaviours
5. Healthy start
6. Living conditions
7. Projections
8. Emerging threats

In Wales, 20% (635,000) of the population are aged 65+ compared to 18% in the rest of the UK; 50% are aged 25-64, and 30% are under 25.

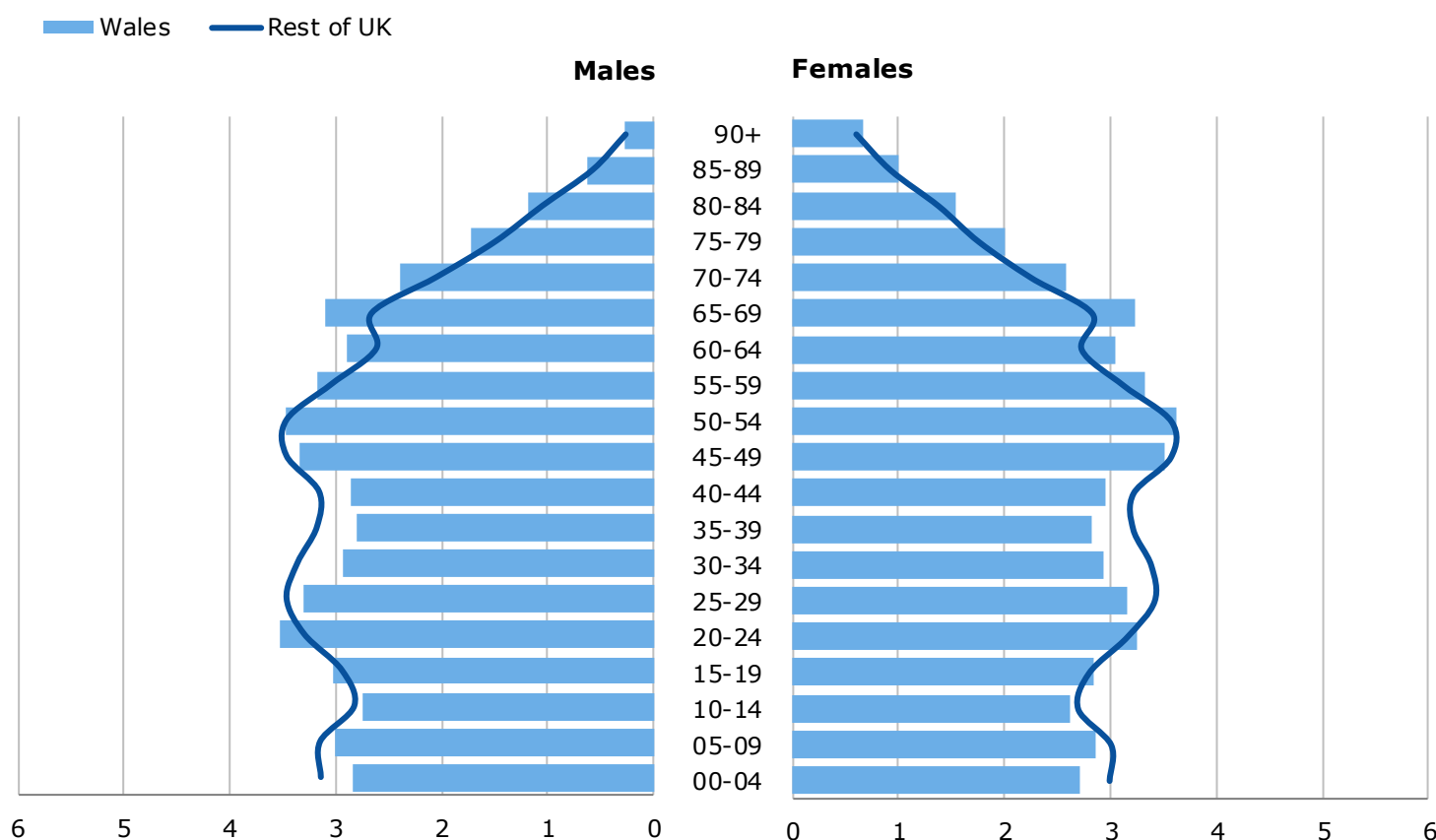


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Percentage of population by age and sex, Wales and the rest of the UK, 2016

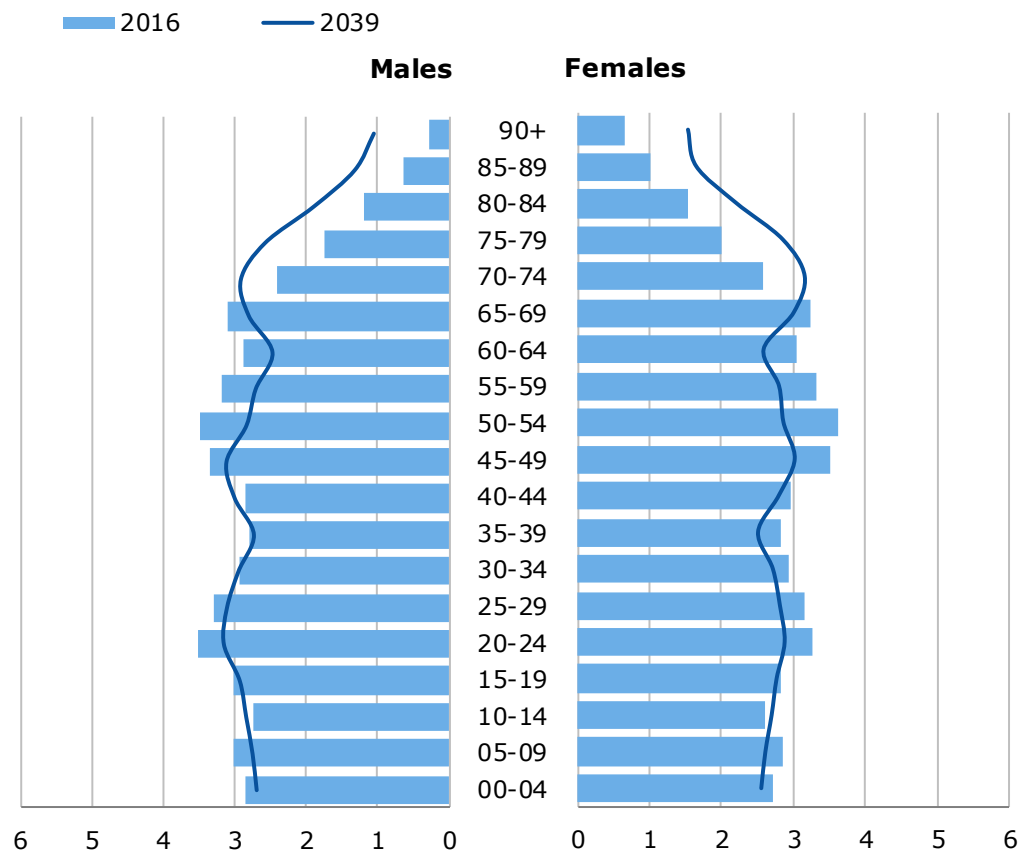
Produced by Public Health Wales Observatory, using MYE (ONS)



The population structure in Wales is projected to change with a substantial rise in the older population, and projected fall in working age adults.

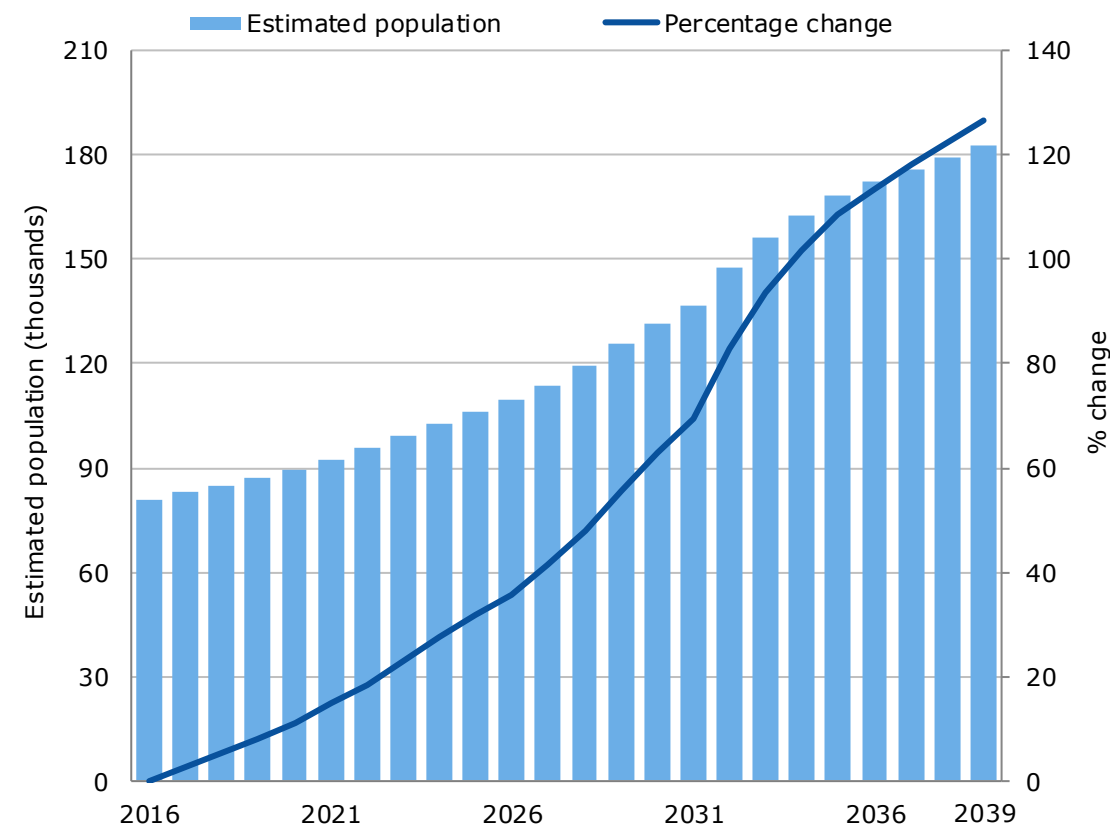
Percentage of population by age and sex, Wales, 2016 and 2039

Produced by Public Health Wales Observatory, using MYE & 2014-based population projections (ONS)



Population projections, estimated population and percentage change since 2016, persons aged 85+, Wales, 2016-2039

Produced by Public Health Wales Observatory, using MYE & 2014-based population projections (ONS)



There is projected to be an increase of over 250,000 people aged 65+, including a 127% increase in those aged 85+. A fall of 5% is projected in working age adults aged 15-64 years.

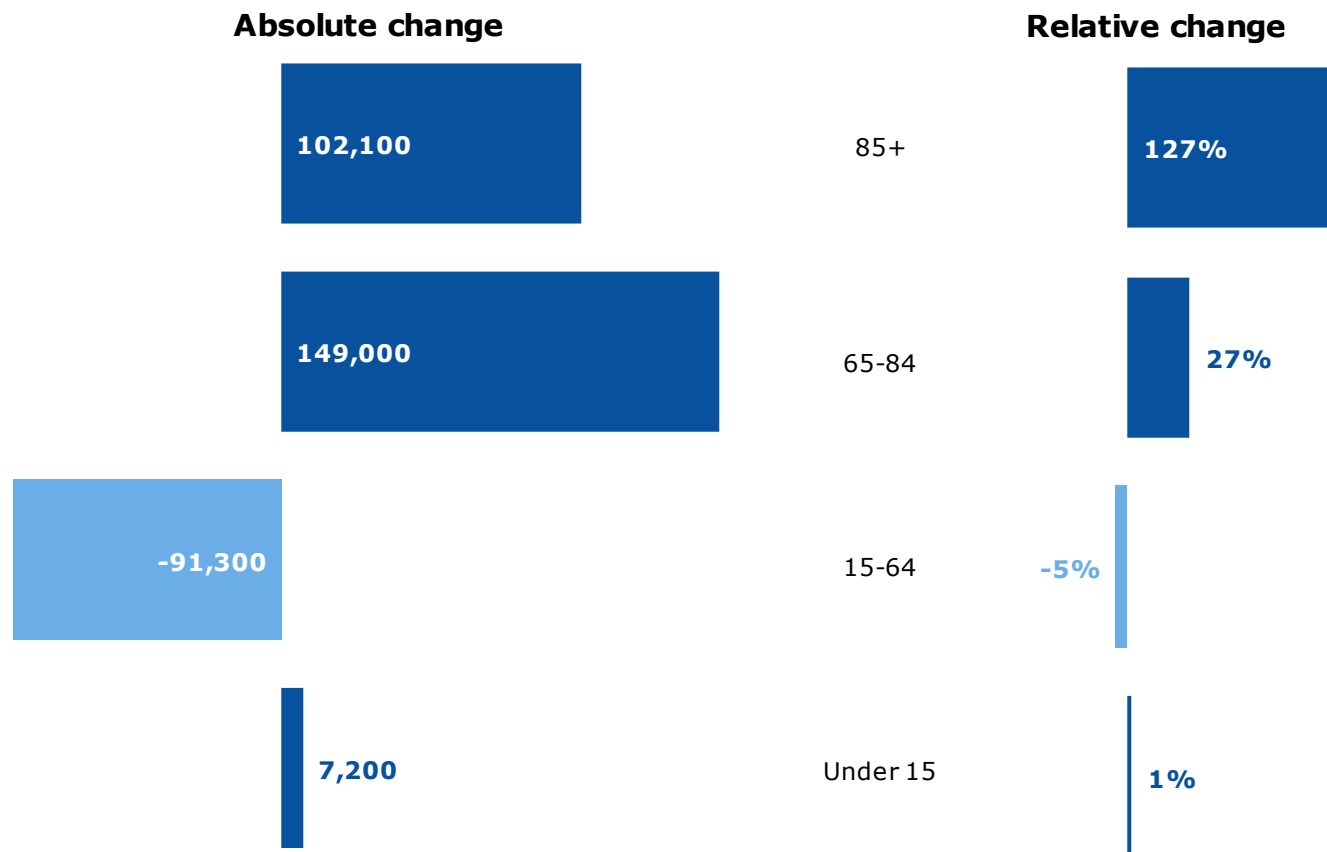


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Population projections by broad age group, absolute (count) and relative (percentage) change since 2016, Wales, 2039

Produced by Public Health Wales Observatory, using MYE & 2014-based population projections (ONS)



Please note: The relative change chart has a logarithmic x-axis.

1. Demography
- 2. Life expectancy**
3. Burden of disease
4. Health behaviours
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Life expectancy and healthy life expectancy in Wales is lower than England. Females in Wales on average spend almost 20 years living in poor health, compared to almost 17 years for males.



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Life expectancy, healthy life expectancy and disability-free life expectancy at birth, UK nations, 2013-2015

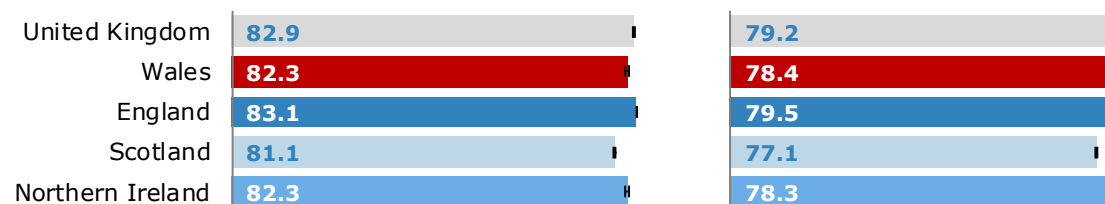
Produced by Public Health Wales Observatory, using health expectancies data (ONS)

— 95% confidence interval

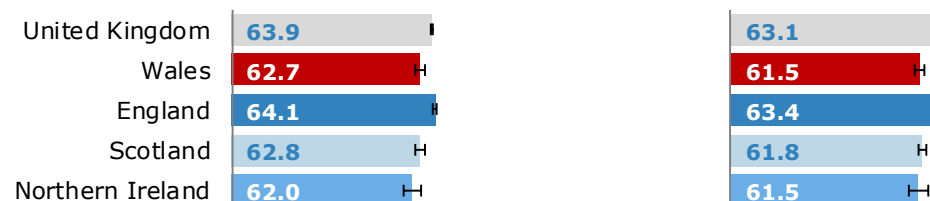
Females

Males

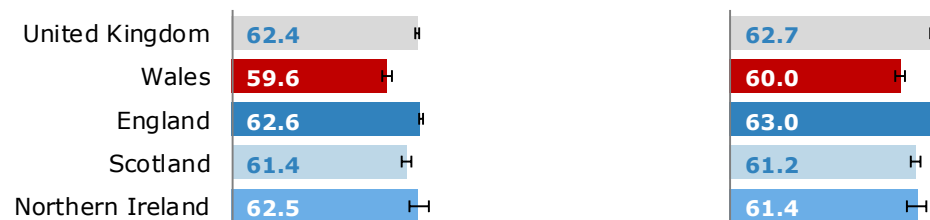
Life expectancy



Healthy life expectancy



Disability-free life expectancy



Please note: Axes have been adjusted to start at 45.

Life expectancy in Wales continues to rise but at a slower rate than England, Northern Ireland and Scotland. Wales is consistently lower than the top international comparators and England.

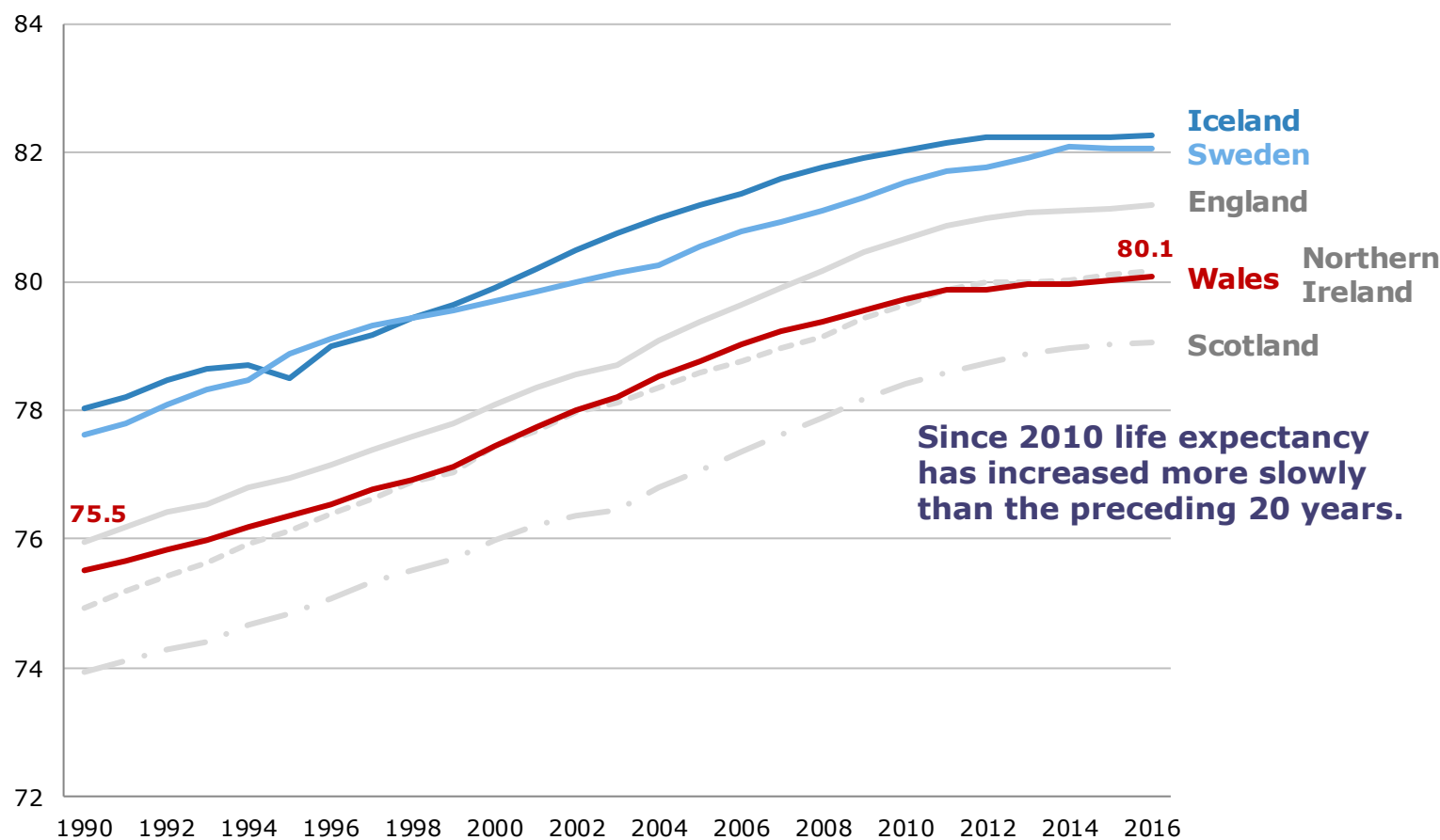


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Life expectancy at birth, UK nations, Iceland and Sweden, 1990-2016

Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



The gap in life expectancy and healthy life expectancy (9 & 19 years for males, 7 & 18 years for females) between the least and most deprived areas in Wales remains unchanged.



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Comparison of life expectancy and healthy life expectancy at birth, with Slope Index of Inequality (SII), Wales, 2005-09 and 2010-14

Produced by Public Health Wales Observatory, using PHM & MYE (ONS) and WIMD & WHS (WG)



1. Demography
2. Life expectancy
- 3. Burden of disease**
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Neoplasms (cancers, 19%) and cardiovascular disease (18%) are the leading causes of DALYs. Musculoskeletal and mental and substance use disorders are the next largest.

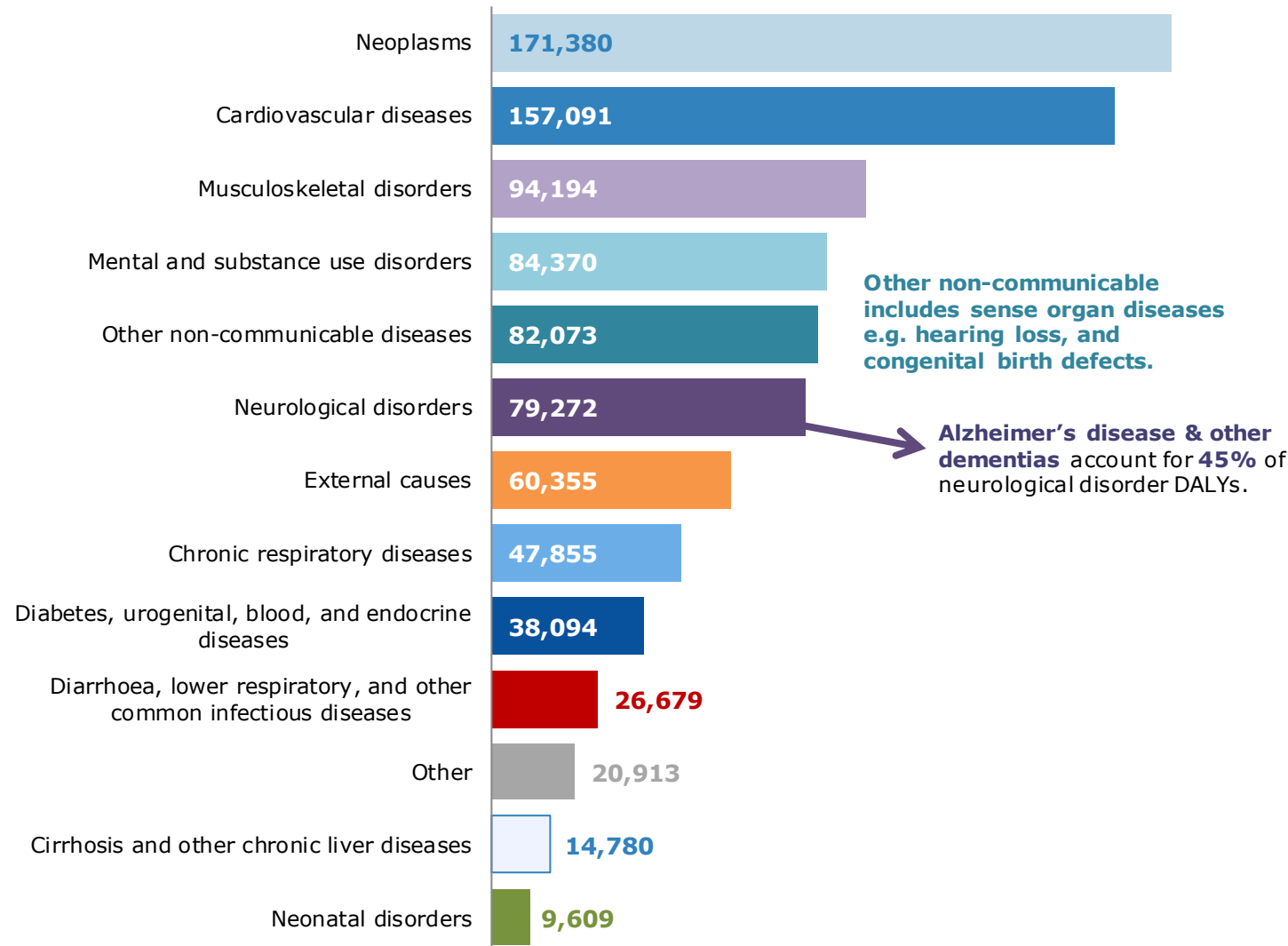


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Disability-adjusted life years (DALYs) by cause, Wales, 2016

Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Musculoskeletal disorders and mental and substance use disorders are the main causes of years lived with disability (YLD).

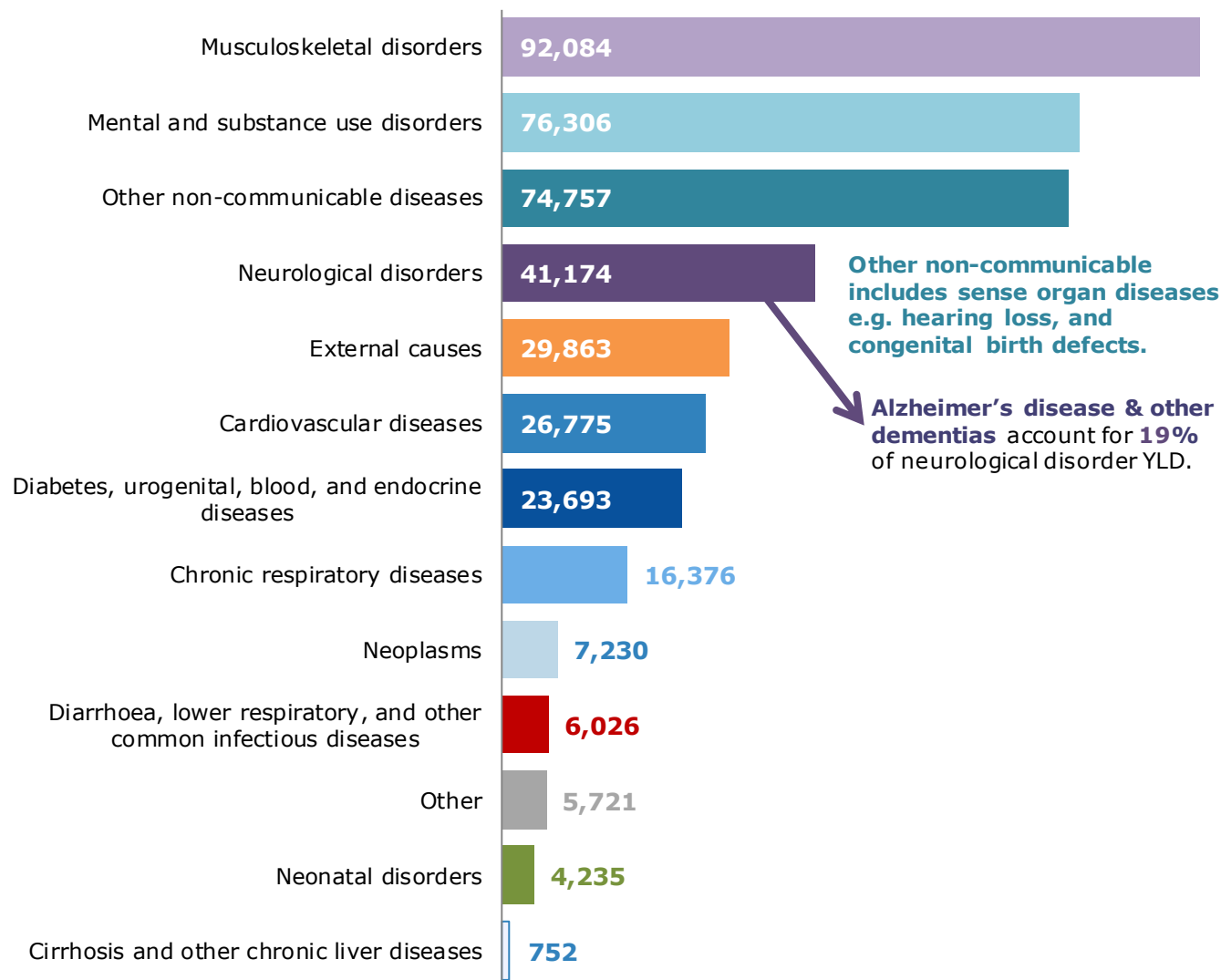


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Years lived with disability (YLD) by cause, Wales, 2016

Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Neoplasms (cancers) and cardiovascular disease are the main causes of years of life lost (YLL) in 2016.

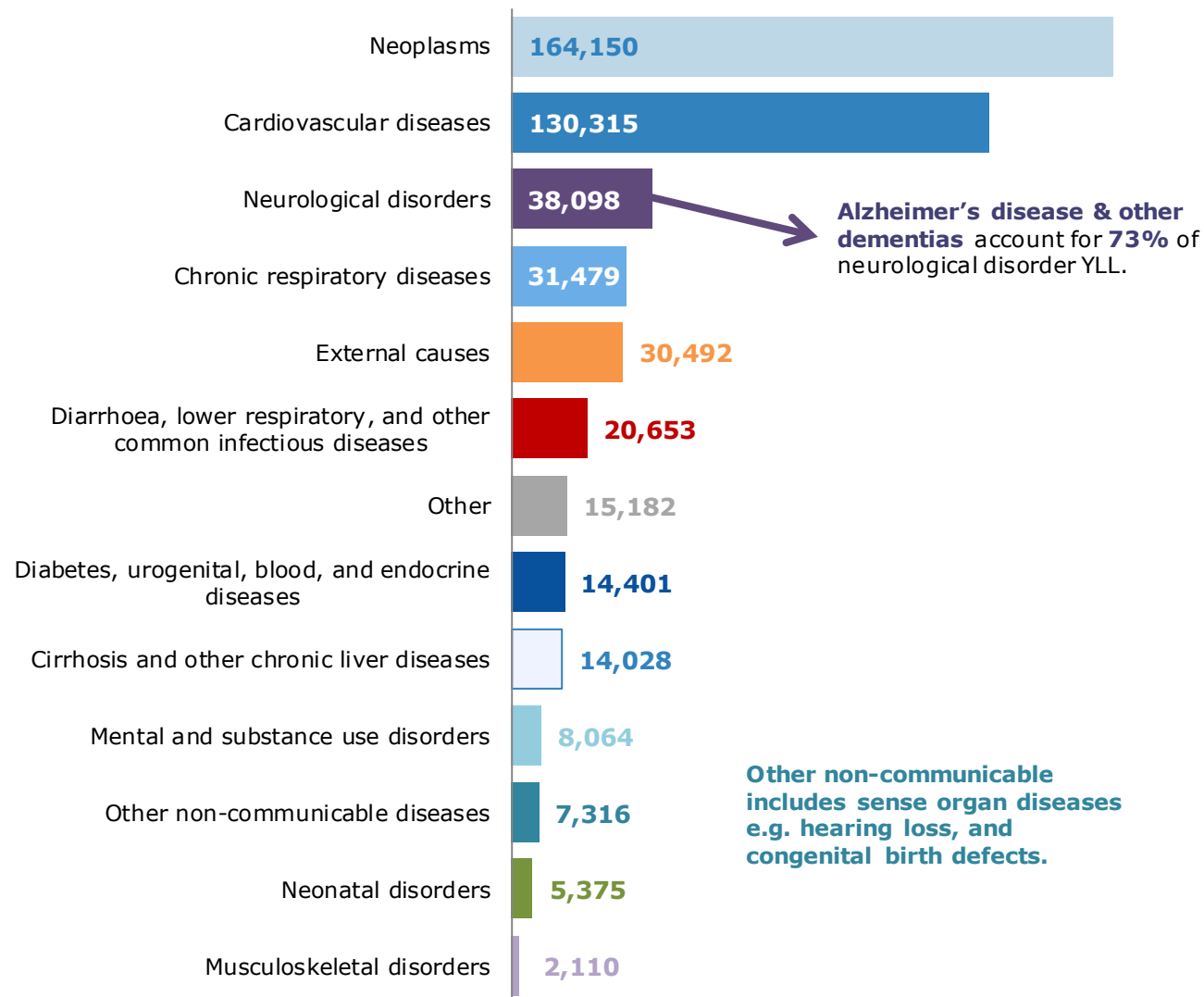


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Years of life lost (YLL) by cause, Wales, 2016

Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Wales has a comparatively high cancer DALY rate that has only marginally decreased since 1990. The cardiovascular disease DALY rate has declined significantly, but Wales remains second highest in UK.

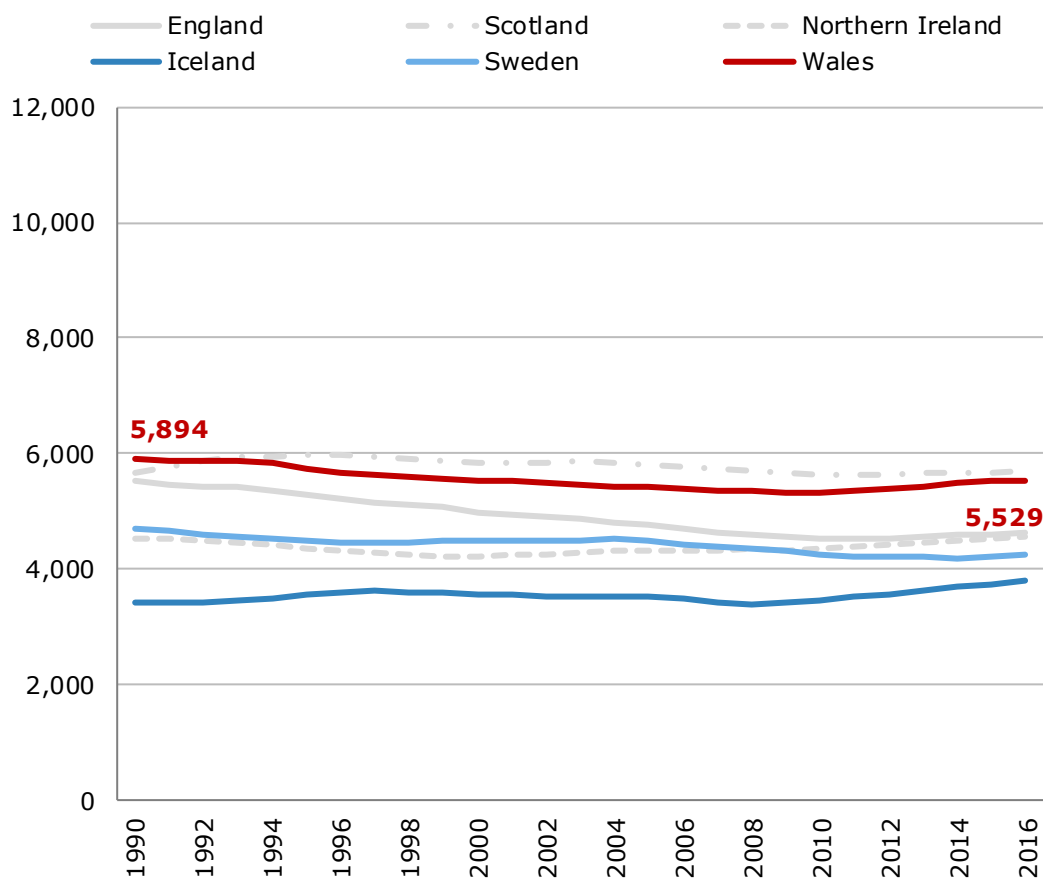


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Disability-adjusted life years (DALYs) due to cancers, crude rate per 100,000, UK nations, Iceland and Sweden, 1990-2016

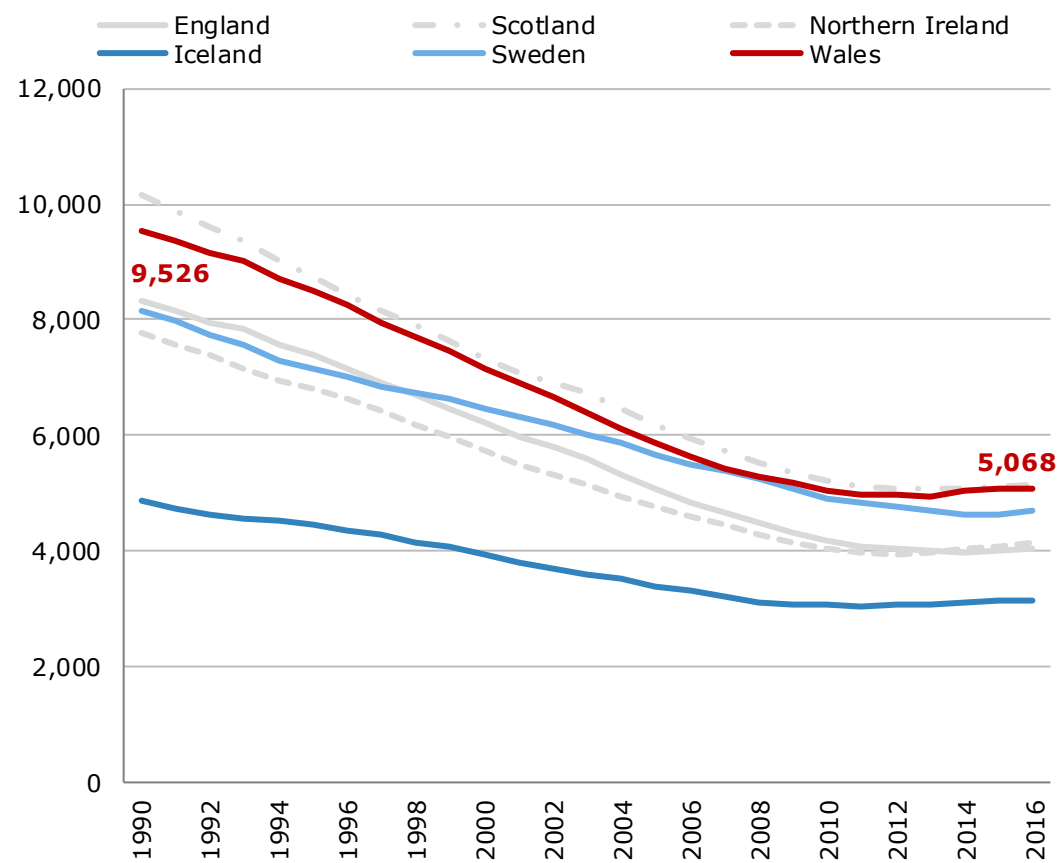
Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Please note: Crude rates do not take into account the precise age structure of a population.

Disability-adjusted life years (DALYs) due to cardiovascular disease, crude rate per 100,000, UK nations, Iceland and Sweden, 1990-2016

Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



DALYs caused by cardiovascular diseases and neonatal disorders have dropped since 1990. While not the largest absolute increase, DALYs caused by cirrhosis & other liver diseases have doubled.

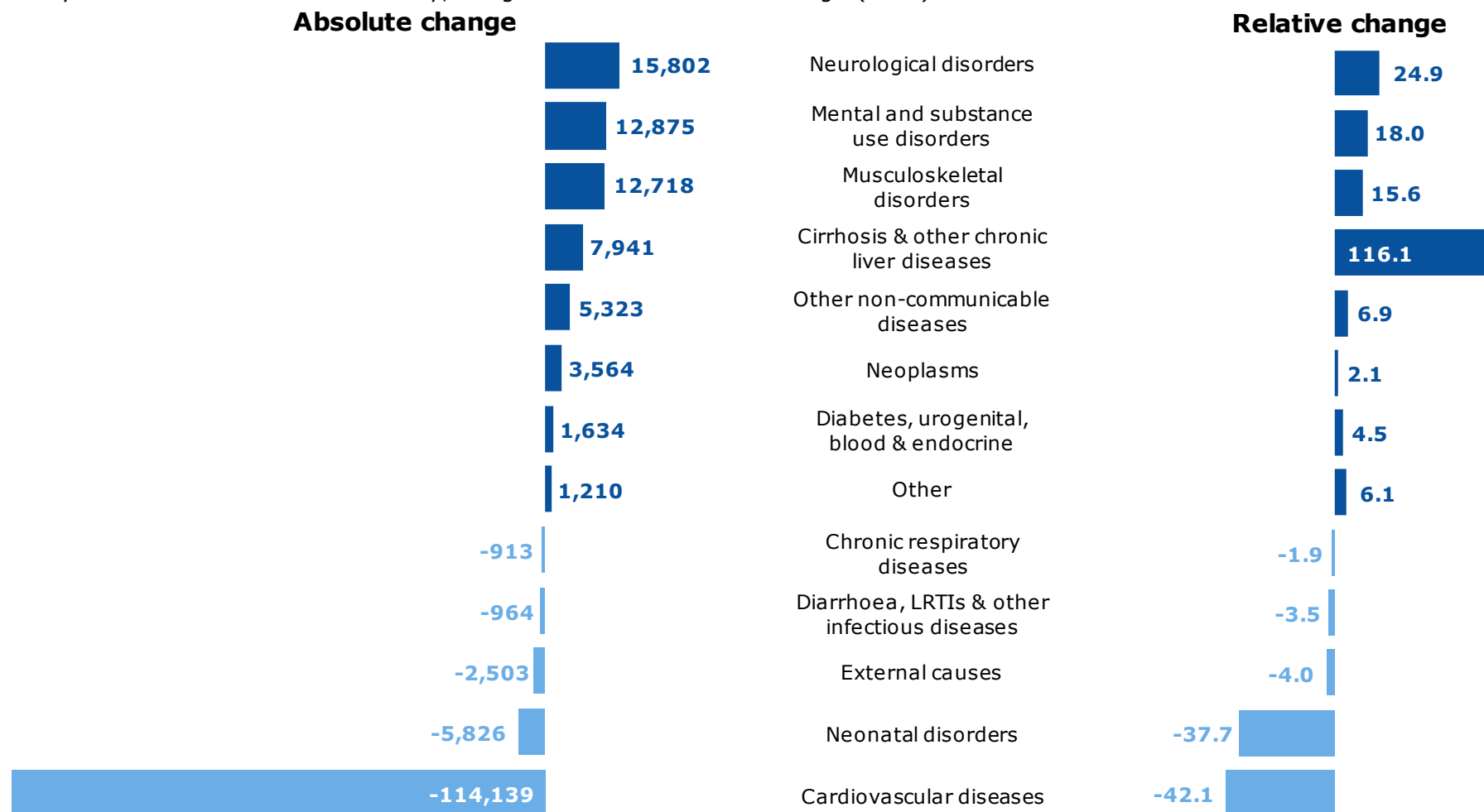


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Disability-adjusted life years (DALYs) by cause, absolute (count) and relative (percentage) change, all persons, all ages, Wales, 1990 & 2016

Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Please note: The relative change chart has a logarithmic x-axis.

Half of DALYs occur in those aged over 65.

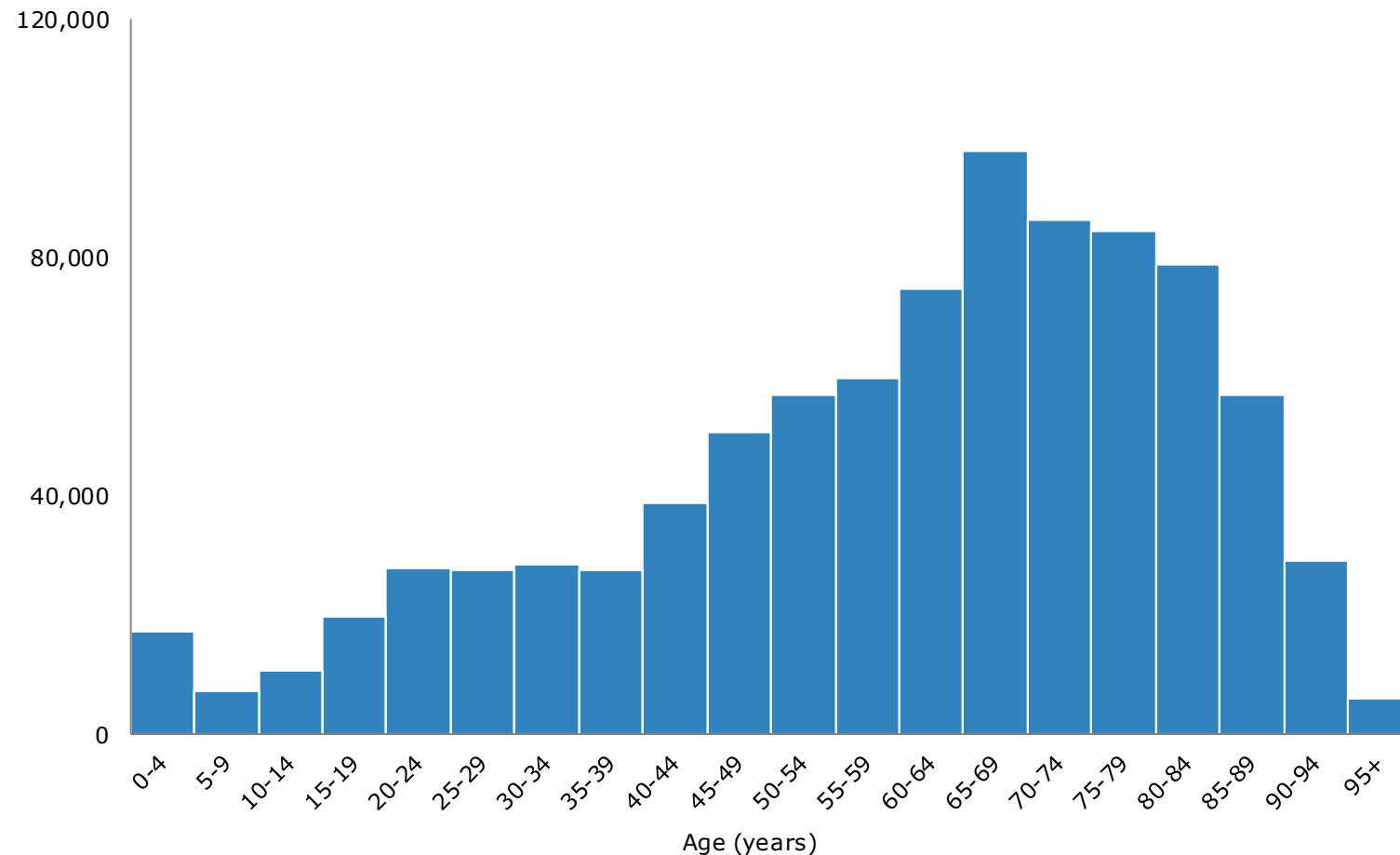


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Count of disability-adjusted life years (DALYs) by age group, all persons, Wales, 2016

Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Causes of DALYs change with age. Mental health and musculoskeletal disorders contribute most in working age, with neoplasms, neurological disorders and cardiovascular disease dominating later in life.

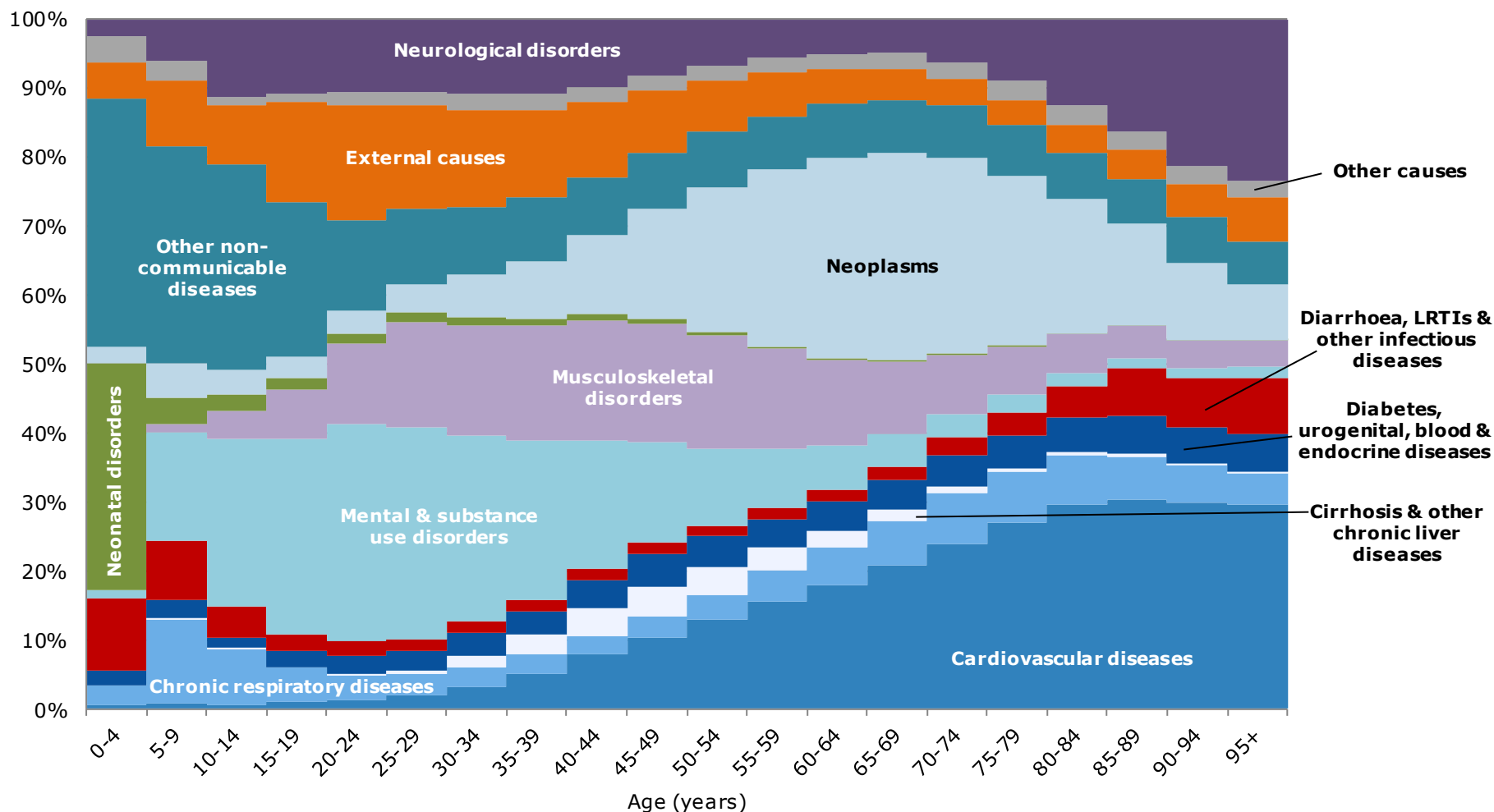


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Disability-adjusted life years (DALYs) by cause and age group, percentage, all persons, all ages, Wales, 2016

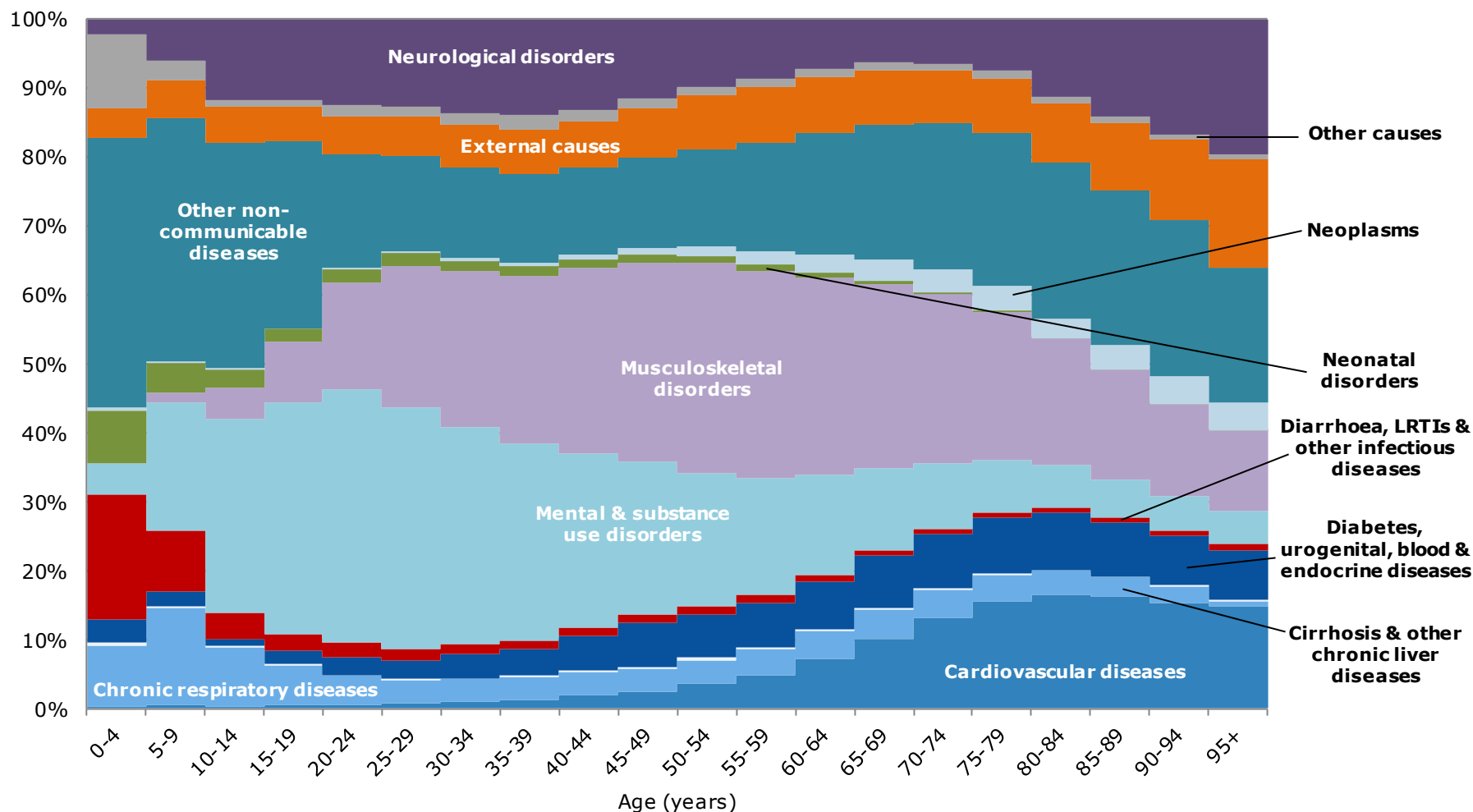
Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Mental health and musculoskeletal disorders are the main causes of YLD during adulthood. Other non-communicable diseases (includes sense organ diseases) contribute to YLD throughout life.

Years lived with disability (YLD) by cause and age group, percentage, all persons, all ages, Wales, 2016

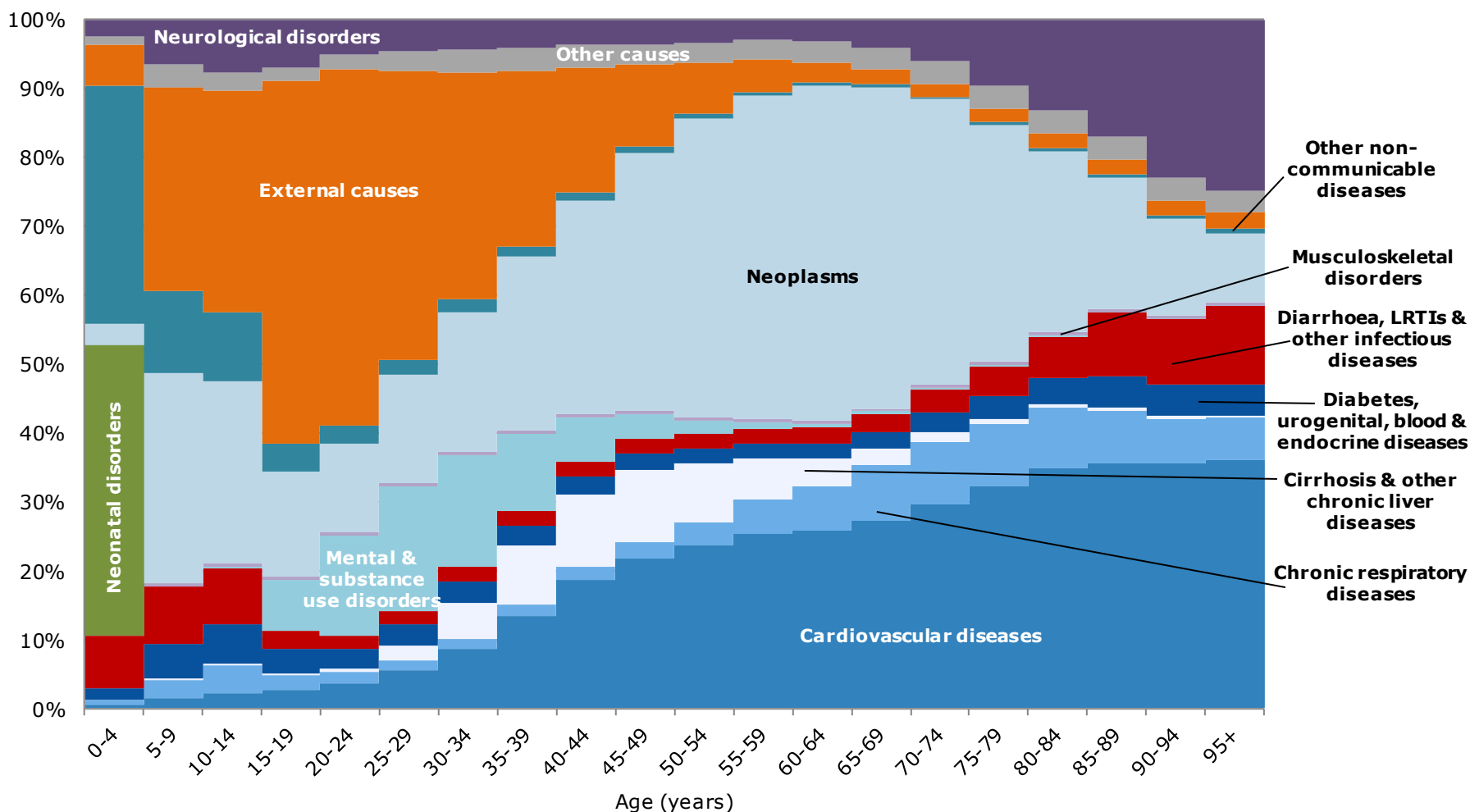
Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



For young adults 50% of years of life lost (YLL) are caused by injuries (external causes). Neoplasms (cancers) and cardiovascular disease are the major causes of YLL for people aged 40+.

Years of life lost (YLL) by cause and age group, percentage, all persons, all ages, Wales, 2016

Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Premature mortality (adults aged 30-70 years) has reduced in the last decade.

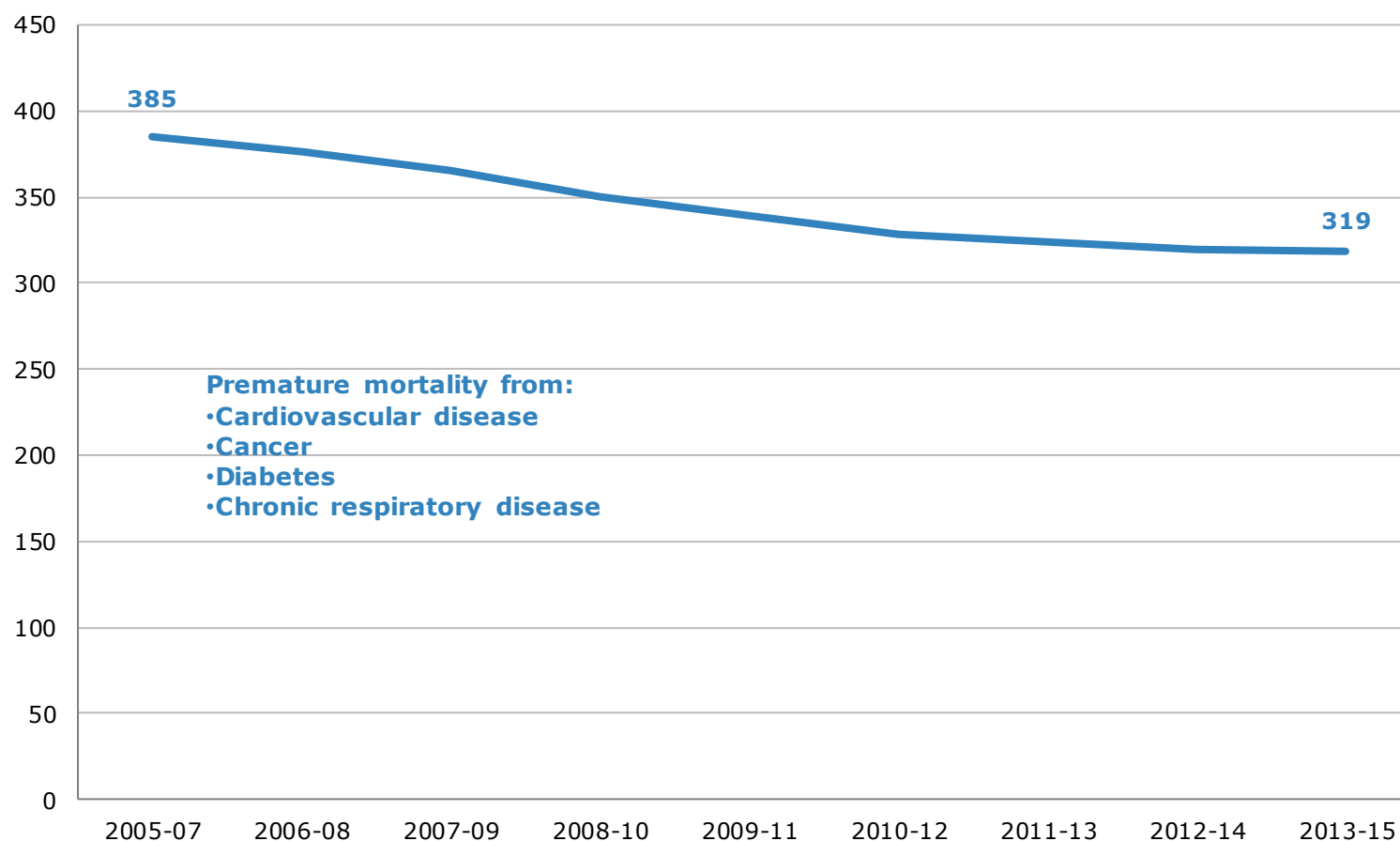


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Premature death from key non-communicable diseases, European age-standardised rate (EASR) per 100,000, all persons aged 30-70, Wales, 2005-2015

Produced by Public Health Wales Observatory, using PHM & MYE (ONS)



Self-reported health status for the older population has improved. There has been little change in working age adults.

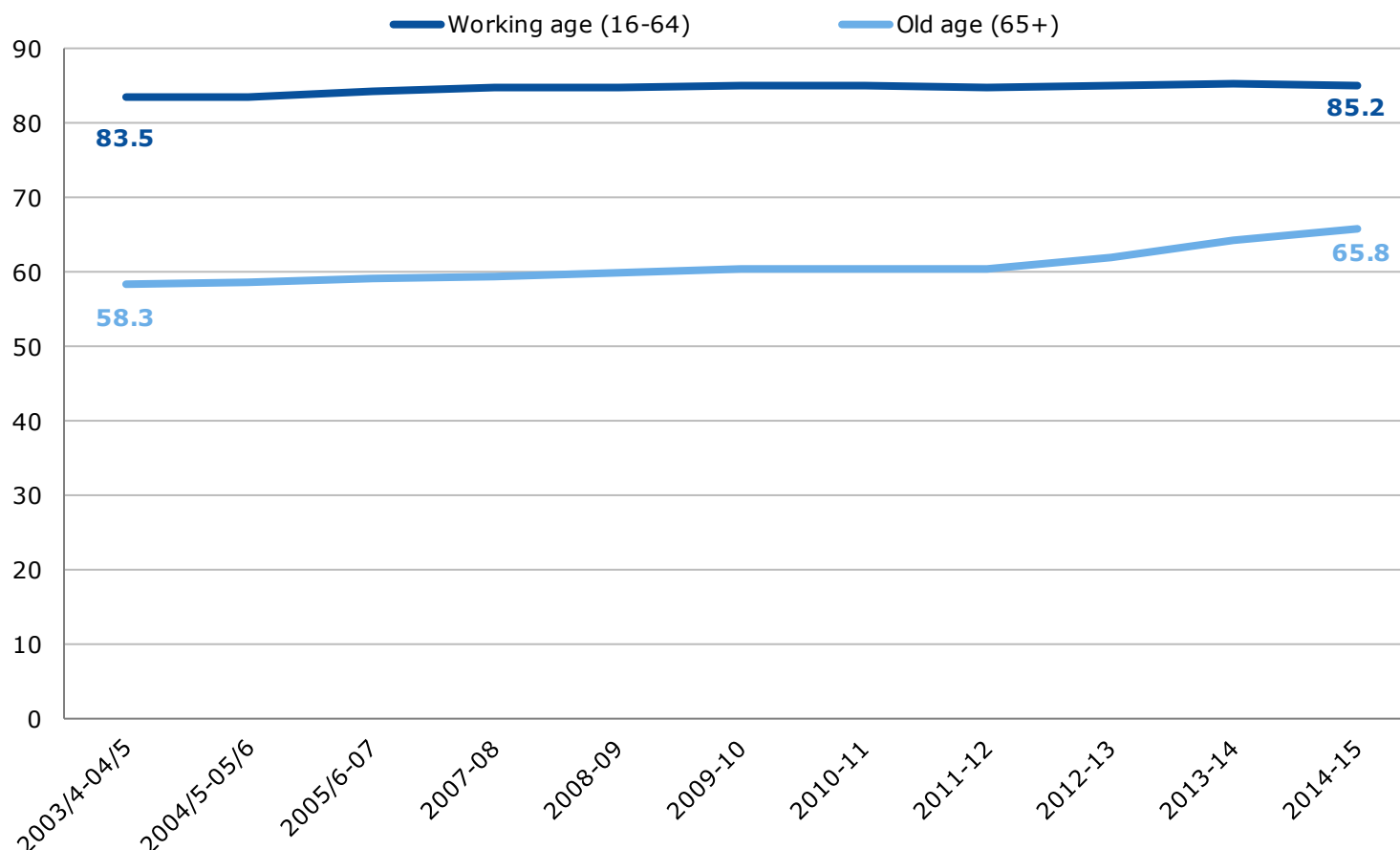


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Adults that reported being in good, very good or excellent health, age-standardised percentage, all persons aged 16+, Wales, 2003/04-2015

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



The burden of co-morbidities rises substantially with age, with 45% of the population aged 75+ reporting having 2 or more longstanding illnesses.

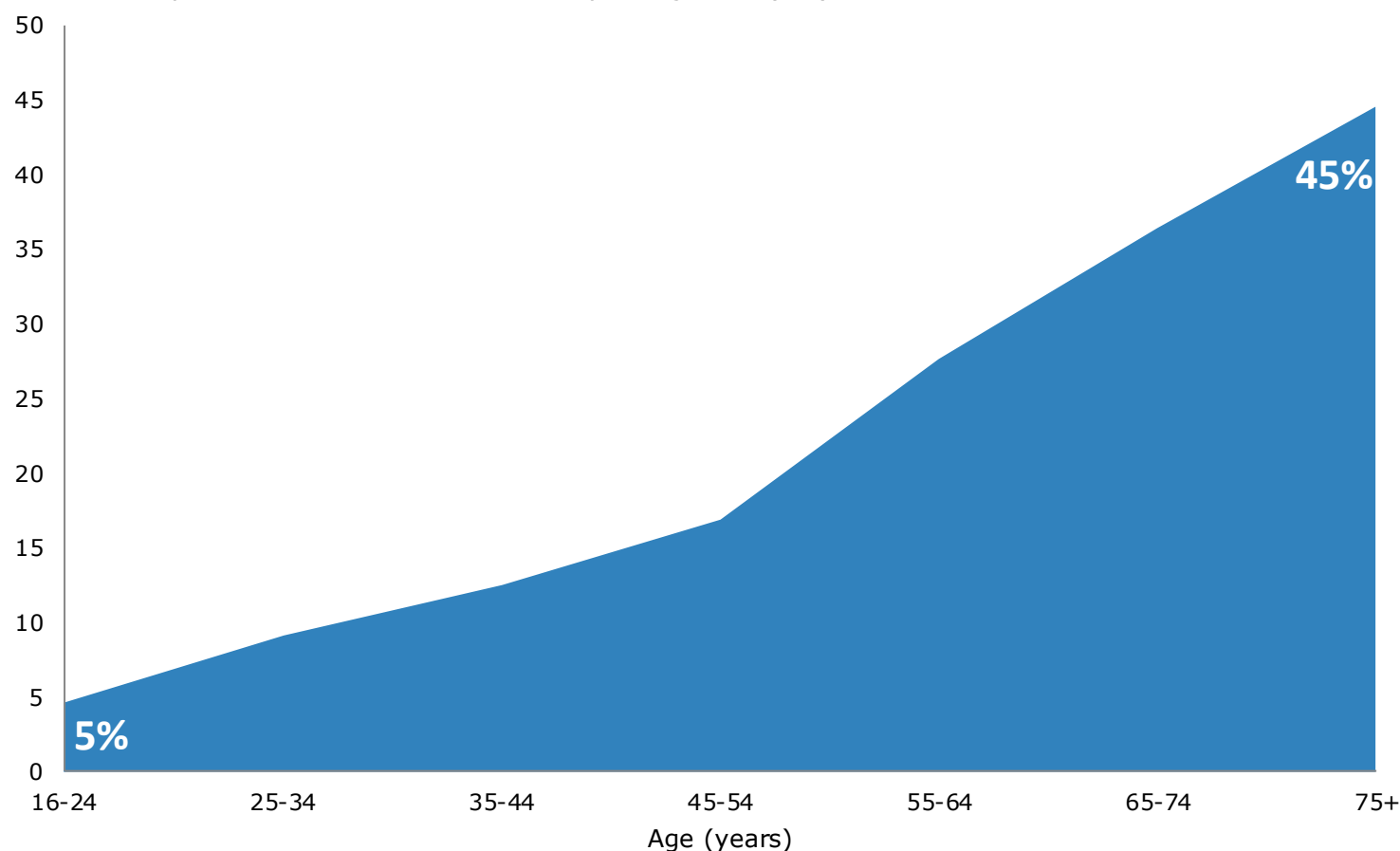


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Percentage who have two or more longstanding illnesses, all persons aged 16+, Wales, 2016/17

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



There has been an increase in the percentage of adults that self-reported currently being treated for any mental illness.

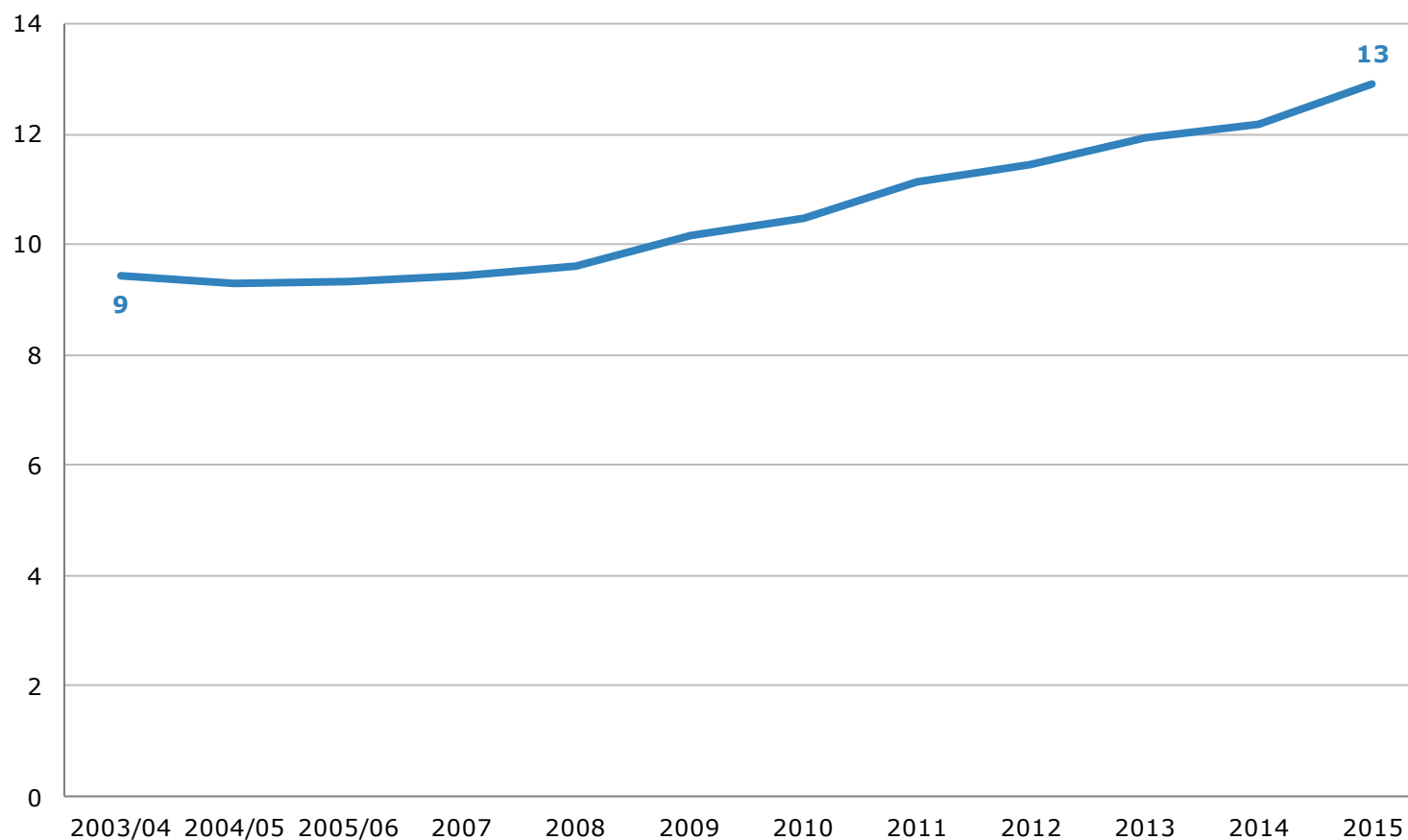


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Adults who reported currently being treated for any mental illness, age-standardised percentage, all persons aged 16+, Wales, 2003/04-2015

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



The prevalence of self-reported heart conditions has dropped whilst the prevalence of diabetes has risen. Prevalence of respiratory conditions remains the same.

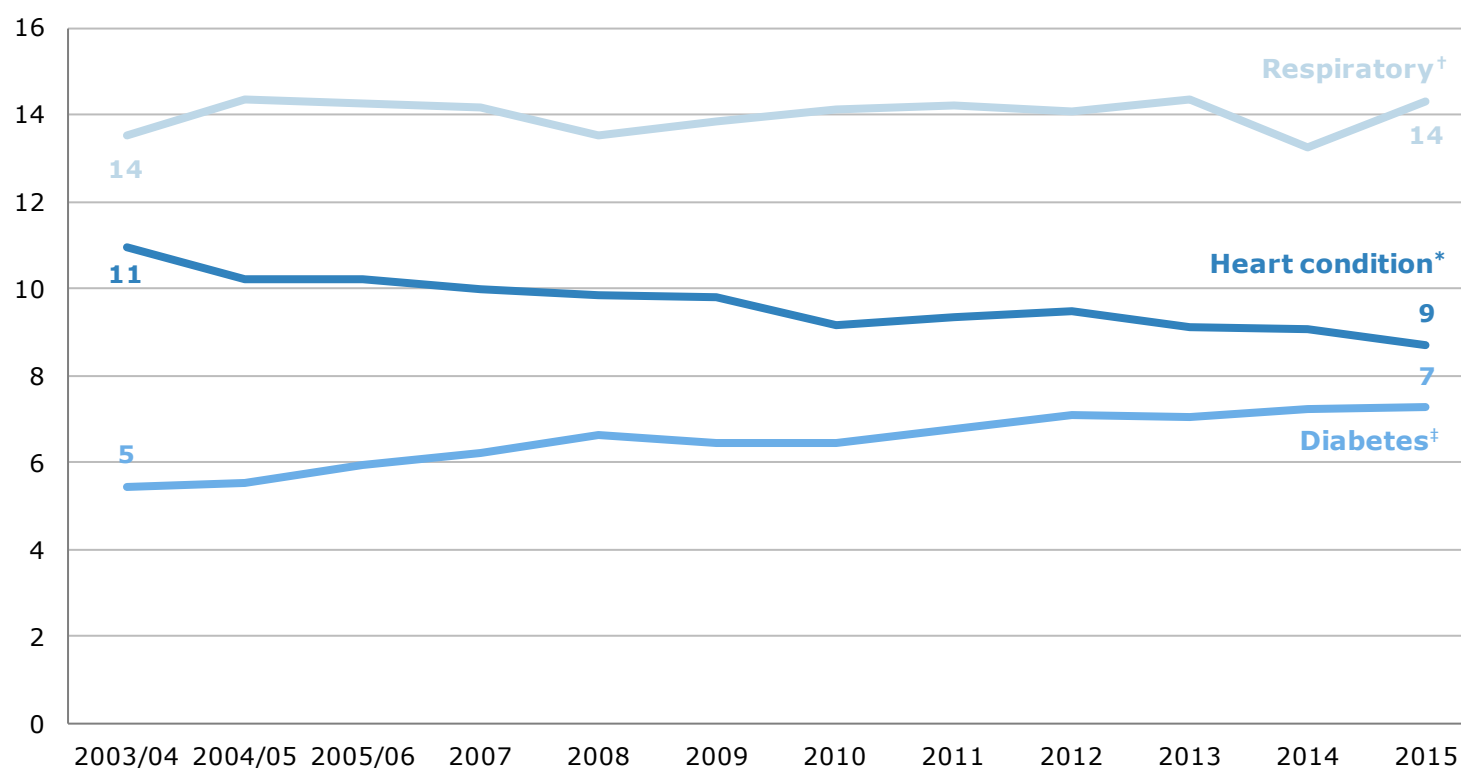


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Selected chronic condition prevalences, age-standardised percentage, all persons aged 16+, Wales, 2003/04-2015

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



* Adults that reported having ever been treated for any heart condition (excluding hypertension)

† Adults that reported currently being treated for any respiratory disease

‡ Adults that reported currently being treated for diabetes

The transmissible nature of communicable diseases represents a potential greater burden if not controlled. Outbreaks can have a seasonal pattern.

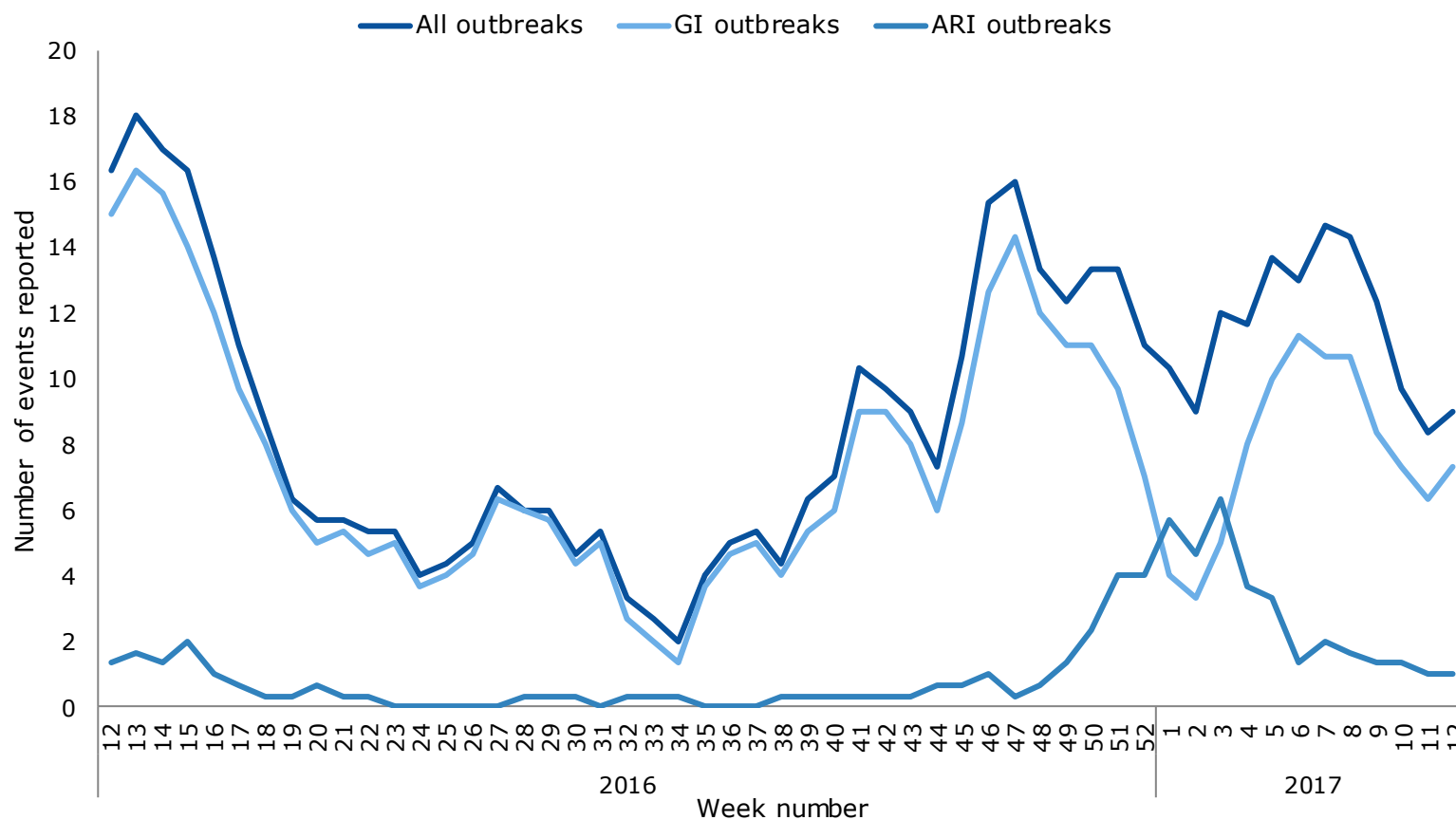


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New outbreaks reported by week of outbreak detection, three week rolling average, all gastrointestinal (GI) and acute respiratory illness (ARI) outbreaks, Wales, week 12 2016 to week 12 2017

Produced by Public Health Wales Communicable Disease Surveillance Centre, using CoSURV and IBID data



Influenza, Hepatitis C and *C. difficile* are the top three causes of DALYs for communicable diseases in Wales.

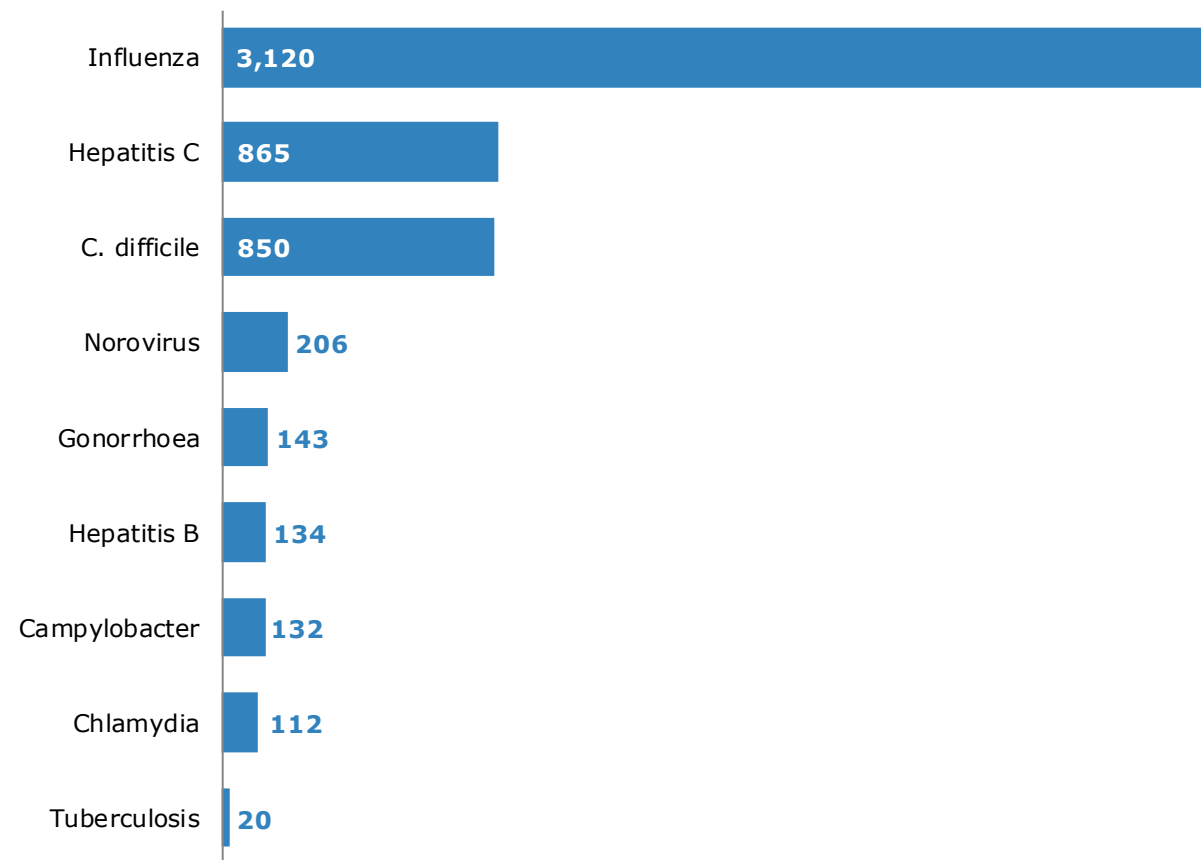


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Estimated disability-adjusted life years (DALYs), selected communicable diseases, count of DALYs, all persons, all ages Wales, 2015

Produced by Public Health Wales Communicable Disease Surveillance Centre, using SWS, CoSURV and IBID and ETS data



Influenza is responsible for one of the highest burdens of disease of all infections. 4% of the Welsh population report influenza-like illness symptoms at the height of the flu season¹.

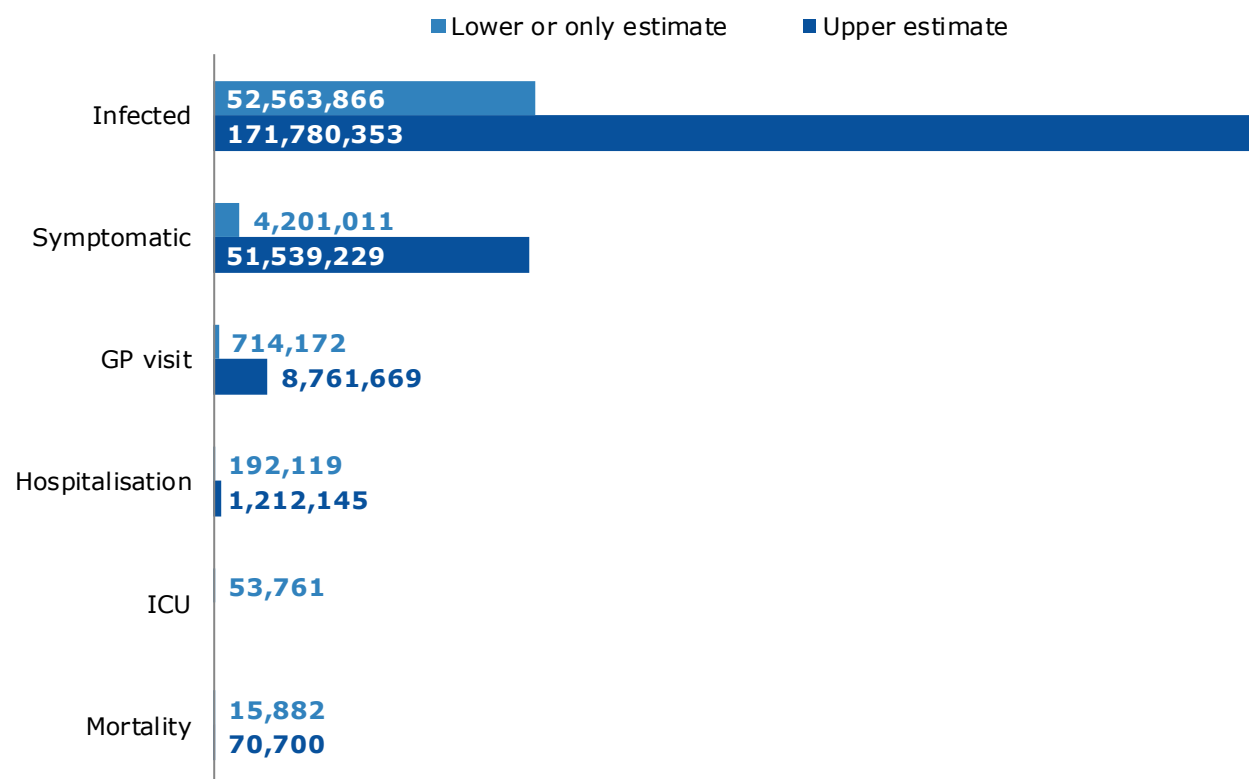


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Annual estimates for influenza outcomes, count (lower and upper estimates), all persons, all ages, Europe, 2017

Produced by Public Health Wales Communicable Disease Surveillance Centre, using data from the European Centre for Disease Control and Prevention (ECDC)



Data correct as of 20 January 2017

¹Based on telephone surveys conducted during the 2015/16 and 2014/15 influenza seasons, during the peak two weeks of activity (in Wales).

In the last 10 years there has been an increase in laboratory confirmed cases of blood born Hepatitis in Wales. In contrast, Tuberculosis cases have dropped by almost 50%.

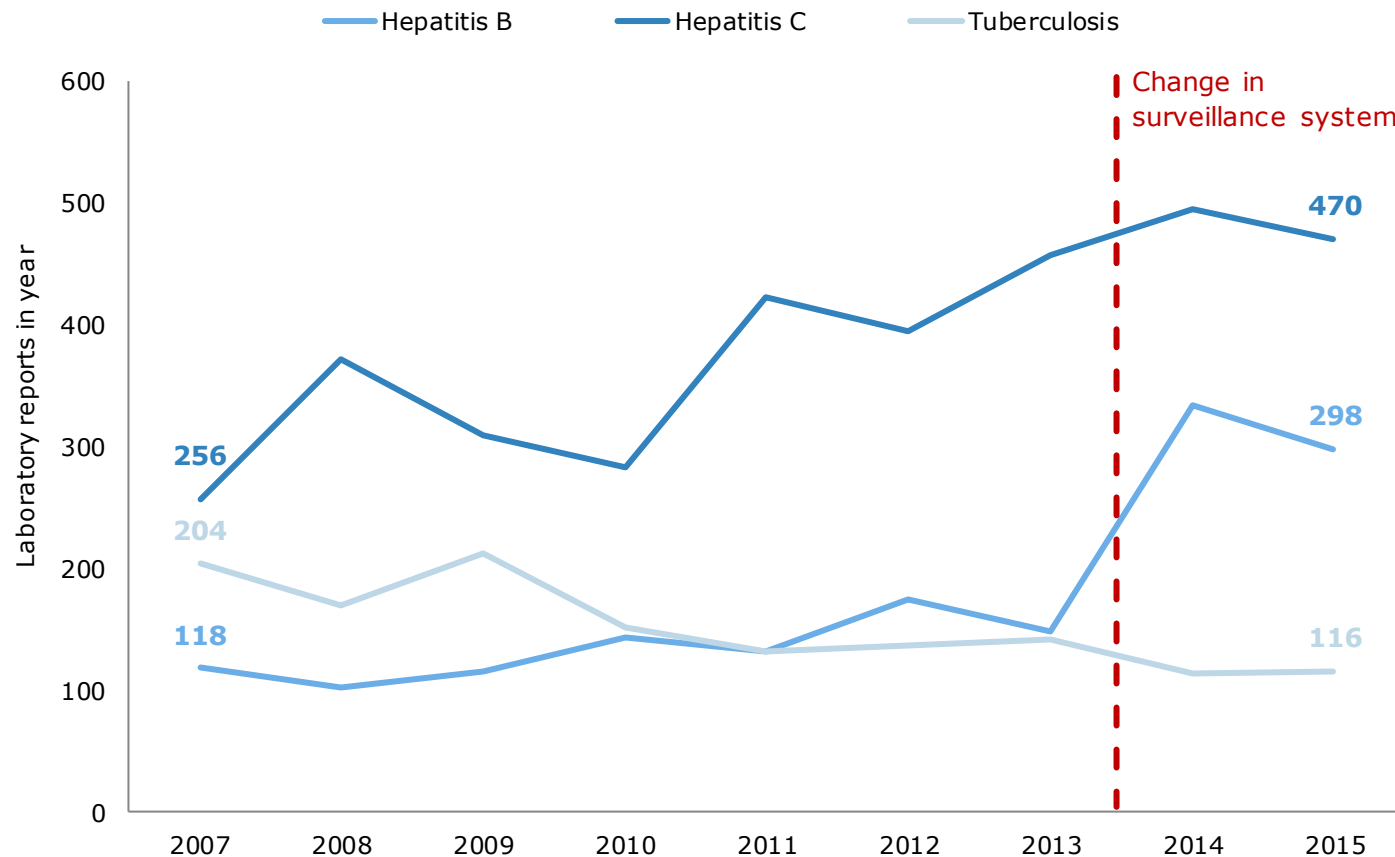


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Laboratory confirmed Hepatitis B and C and reported cases of Tuberculosis, counts, all persons, all ages, Wales, 2007-2015

Produced by Public Health Wales Communicable Disease Surveillance Centre, using CoSURV and IBID, and ETS databases



Laboratory confirmed reports of the infection *C. difficile* have dropped by over 50% in the last 5 years. In the same period, lab confirmed *E.coli* bacteraemia have increased slightly.

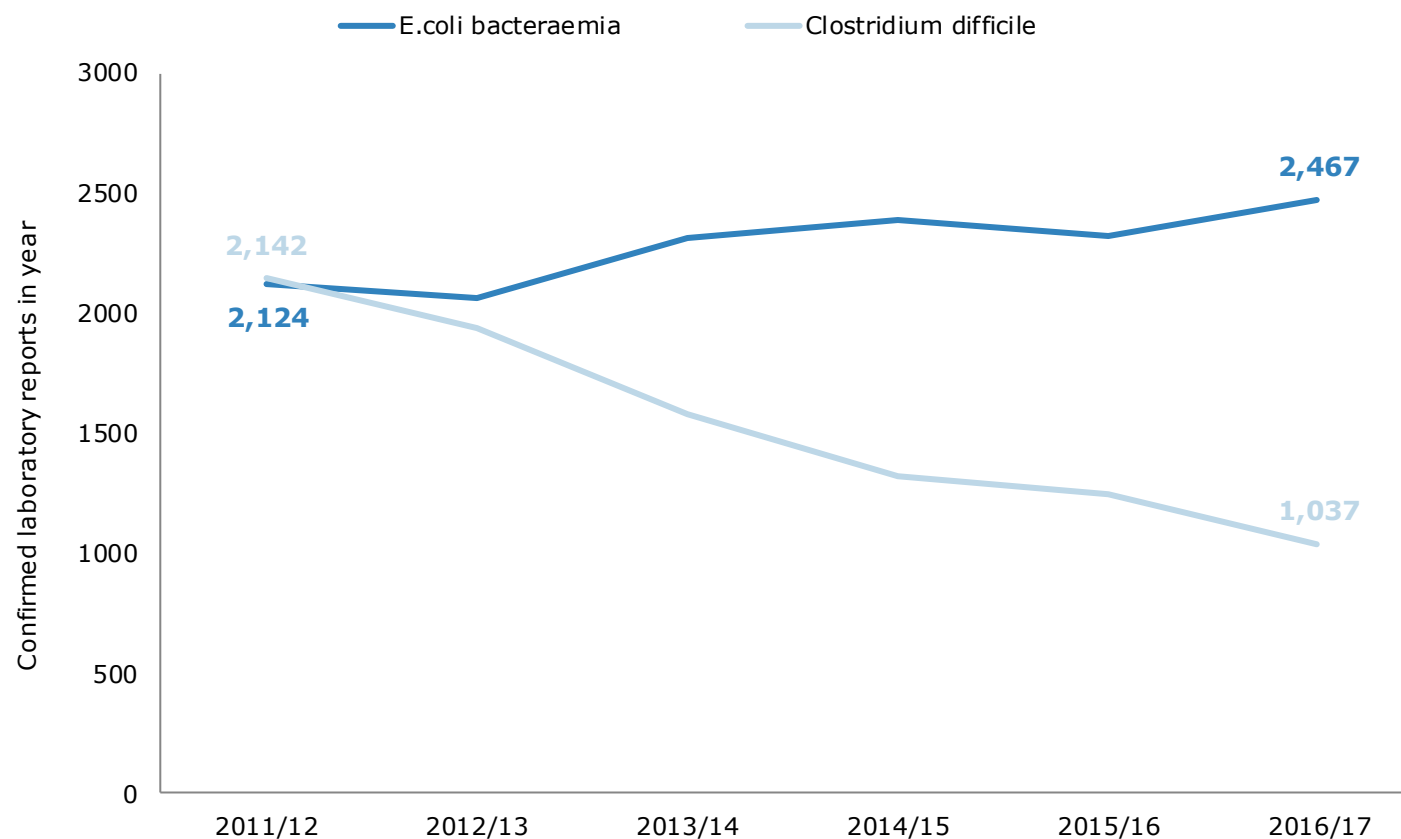


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Laboratory confirmed *E.coli* bacteraemia and *Clostridium difficile*, counts, all persons, all ages, Wales, 2011/12-2016/17

Produced by Public Health Wales Communicable Disease Surveillance Centre, using Datastore



Please note: Data are as at 1st January 2017 for *E.coli* bacteraemia and 2nd March 2017 for *Clostridium difficile*.

There has been an increase in reported cases of the sexually transmitted infections Chlamydia and Gonorrhoea in the last 5 years in Wales.

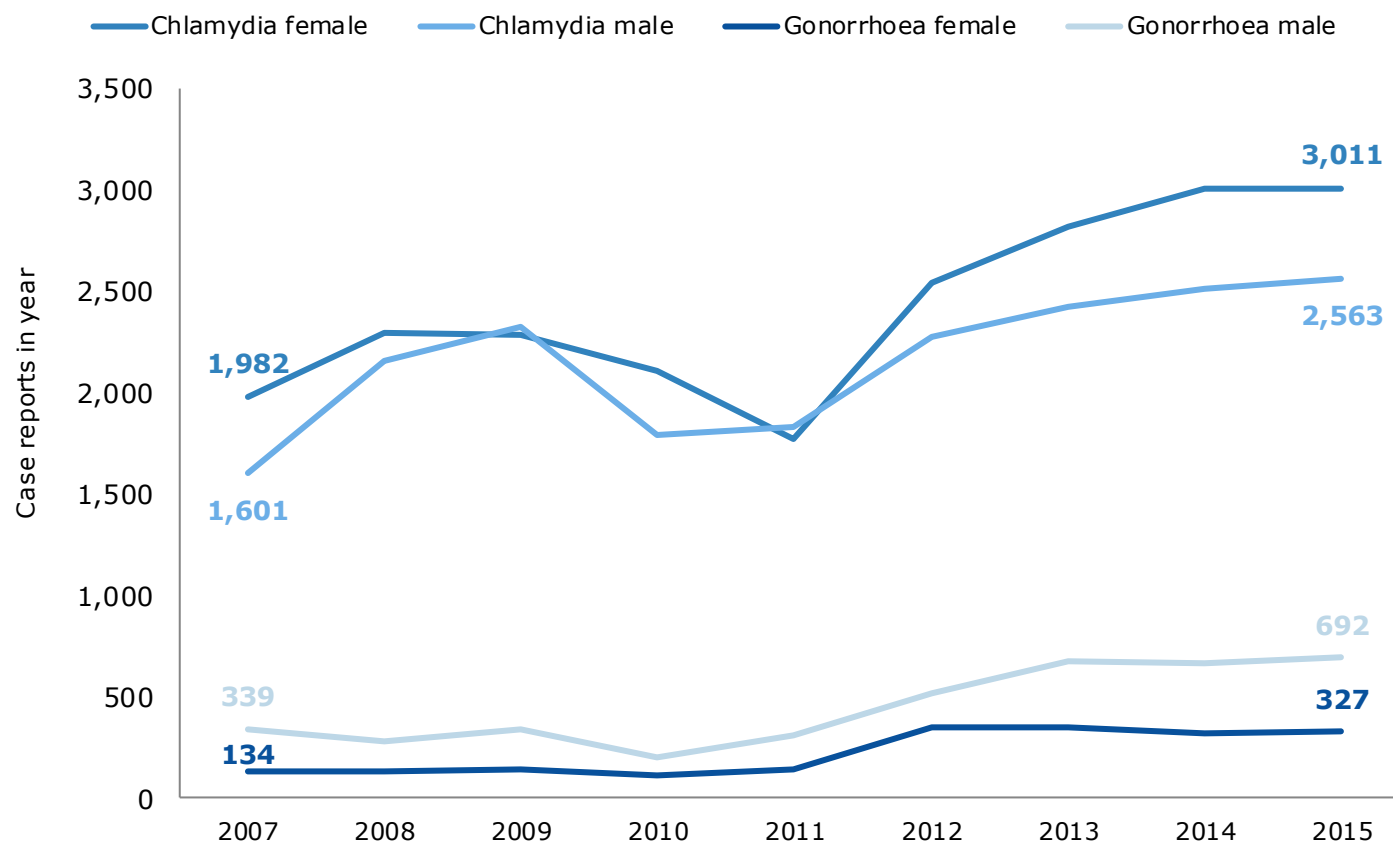


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Chlamydia and Gonorrhoea reported from sexual health clinics via the Sexual Health in Wales Surveillance Scheme (SWS), counts, males and females, all ages, Wales, 2007-2015

Produced by Public Health Wales Communicable Disease Surveillance Centre, using data from SWS



1. Demography
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Research has helped us to attribute 40% of all DALYs to risk factors identified by the Global Burden of Disease study. Determining these risk factors contributes to prevention efforts.

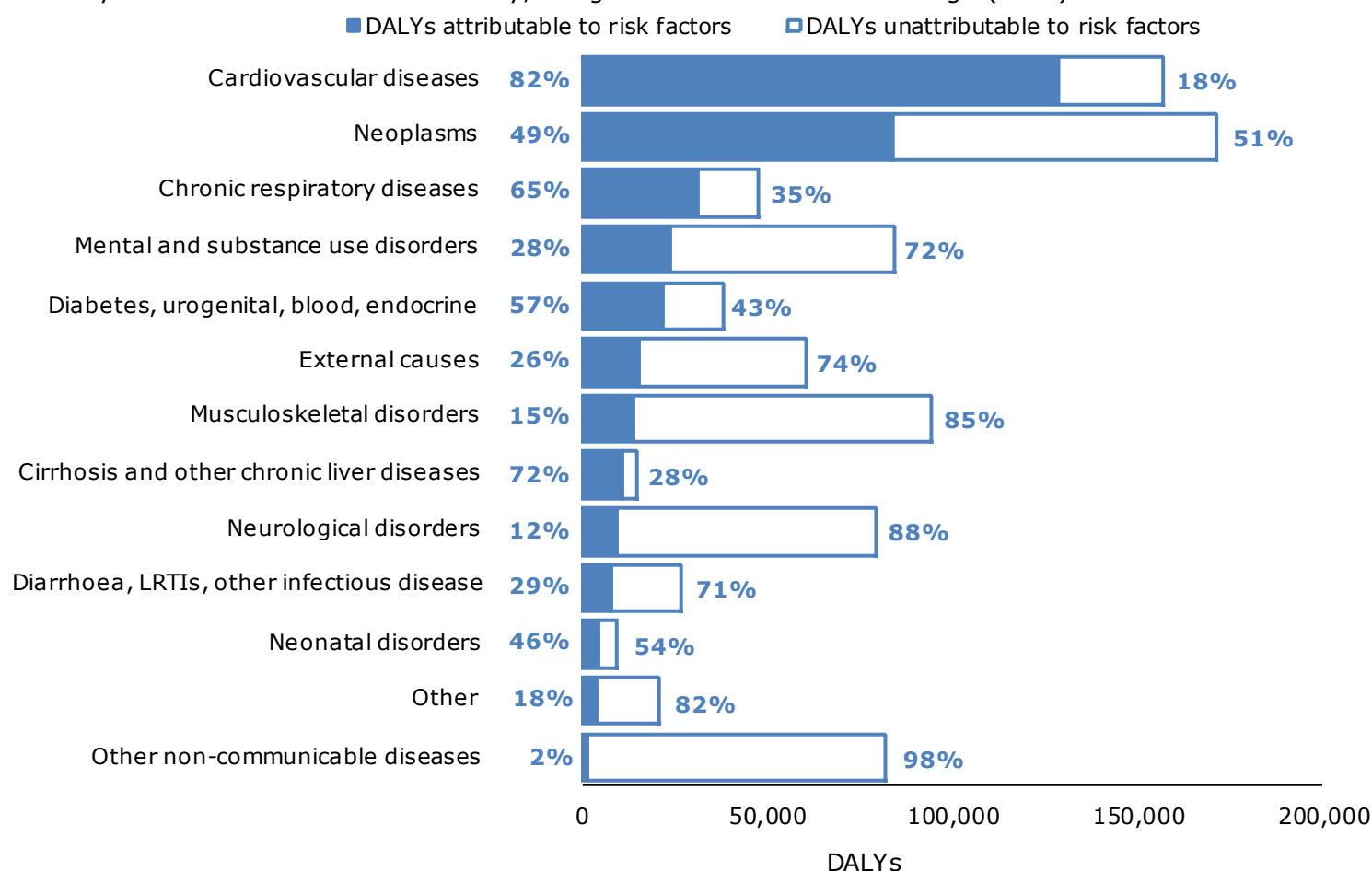


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Disability-adjusted life years (DALYs) attributable and unattributable to Global Burden of Disease identified risk factors, by cause, counts and percentages, all persons, all ages, Wales, 2016

Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Previous smoking is the biggest risk factor for current DALYs. High blood pressure, having a high BMI and high cholesterol are also substantial risk factors.

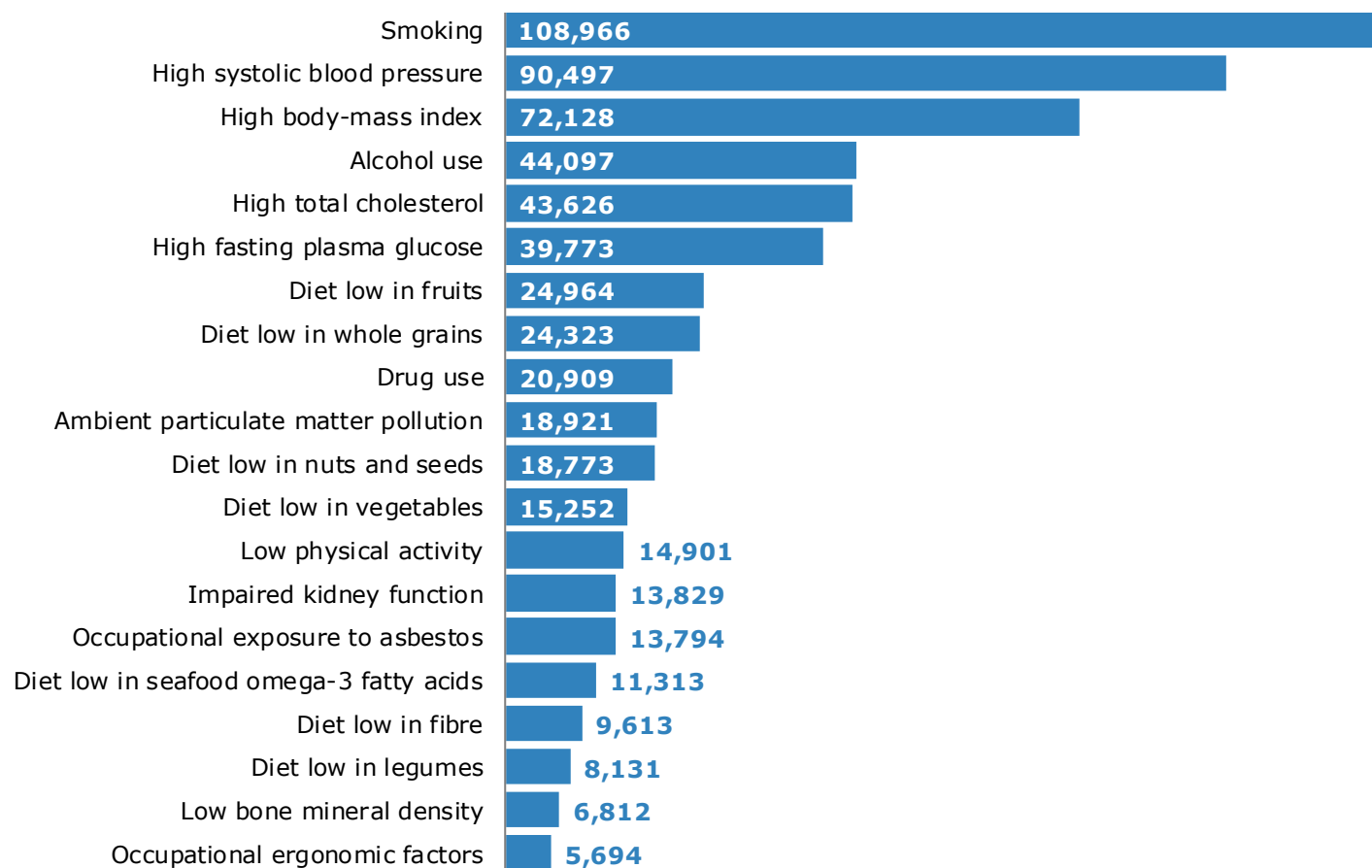


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Top 20 Global Burden of Disease identified risk factors for disability-adjusted life years (DALYs), count of DALYs, all persons, all ages, Wales, 2016

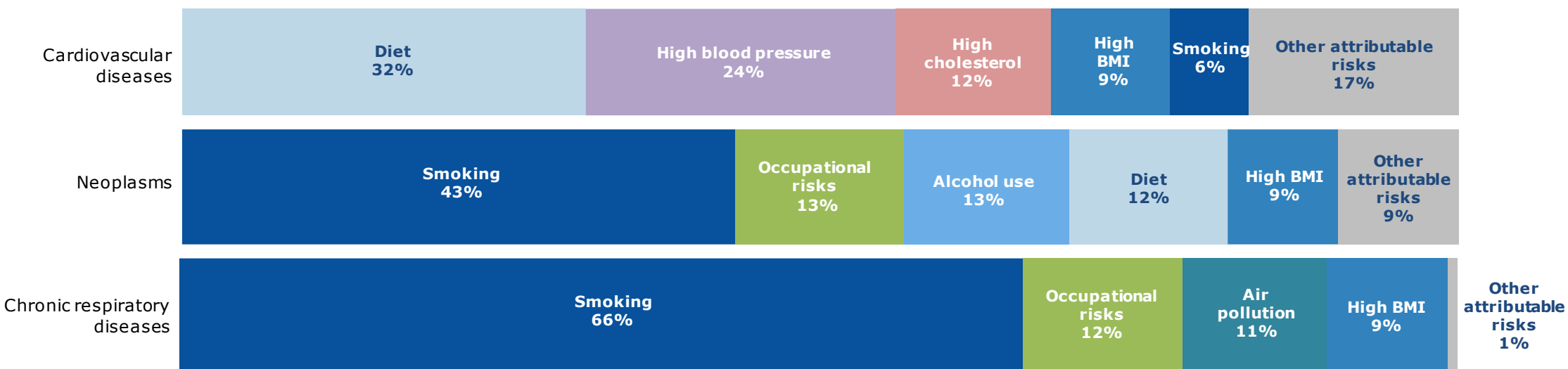
Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Smoking accounts for two thirds of the attributable DALYs for chronic respiratory disease. It also accounts for 43% of attributable DALYs for neoplasms and 6% of cardiovascular diseases.

Global Burden of Disease identified risks for the three causes with the largest number of attributable disability-adjusted life years (DALYs), percentage, all persons, all ages, Wales, 2016

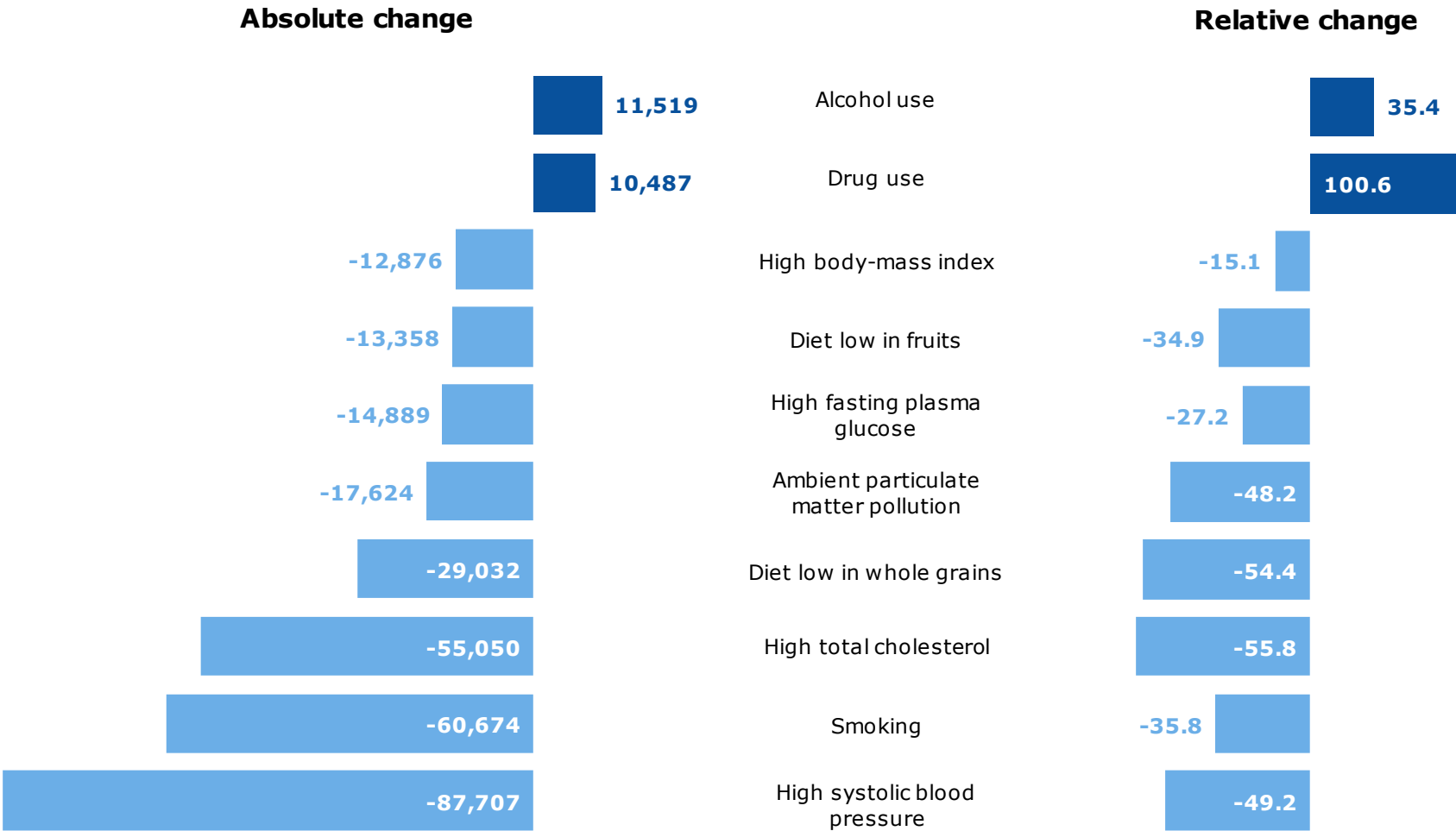
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Please note: The total number and proportion of DALYs that can be attributed to known risk factors varies substantially by cause (see slide 38).

Since 1990 the number of DALYs attributed to drug use has more than doubled whereas the number of DALYs attributed to high cholesterol and high blood pressure has halved.

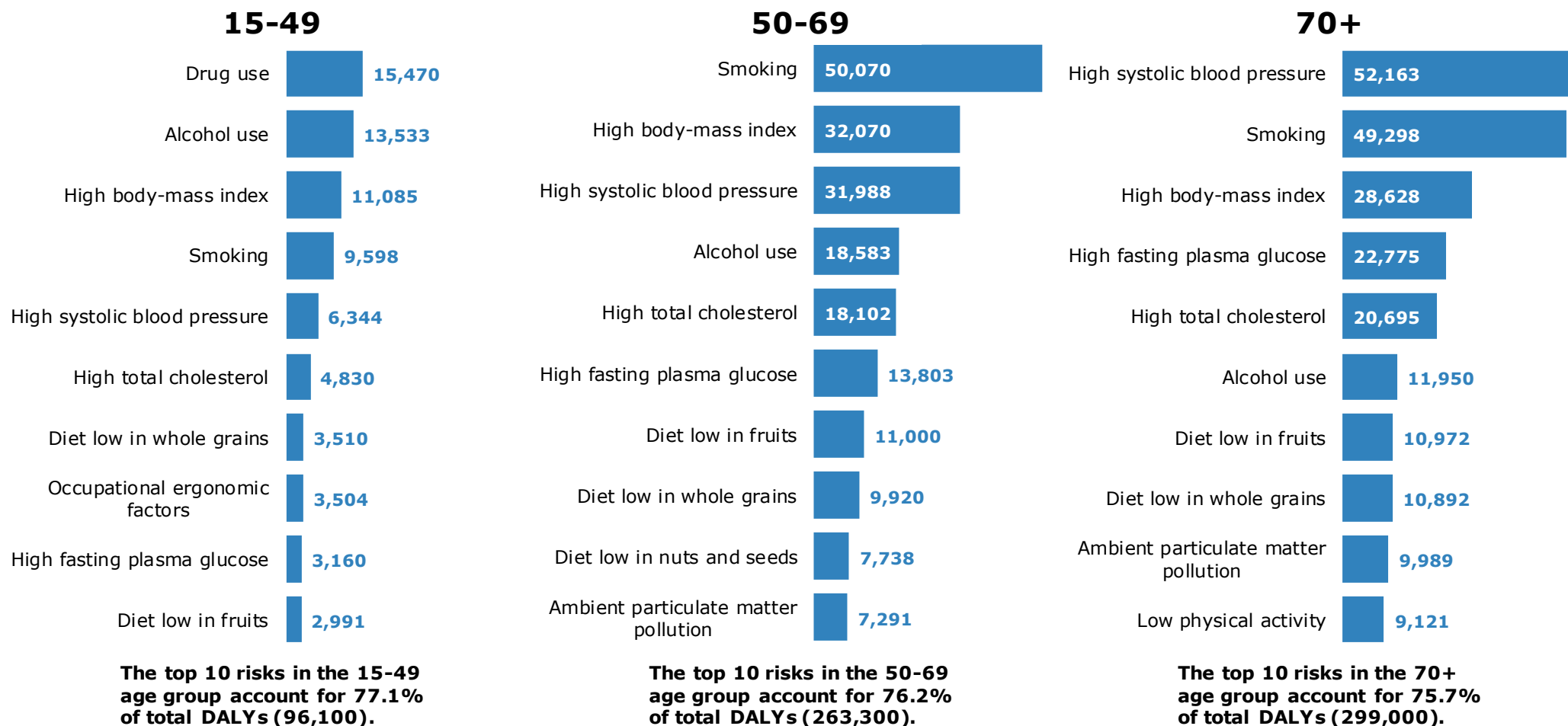
Top 10 Global Burden of Disease identified risk factors for disability-adjusted life years (DALYs), absolute (count) and relative (percentage) change, all persons, all ages, Wales, 1990 & 2016
Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Risks for DALYs change by age group. For adults under 50, drug use, alcohol use and high BMI are top risks. Smoking, high BMI and high blood pressure are the top three risks for adults 50+.

Top 10 Global Burden of Disease identified risk factors for disability-adjusted life years (DALYs) by age group, counts, all persons aged 15+, Wales, 2016

Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Having a high BMI is the leading risk factor for years of life lived with disability.

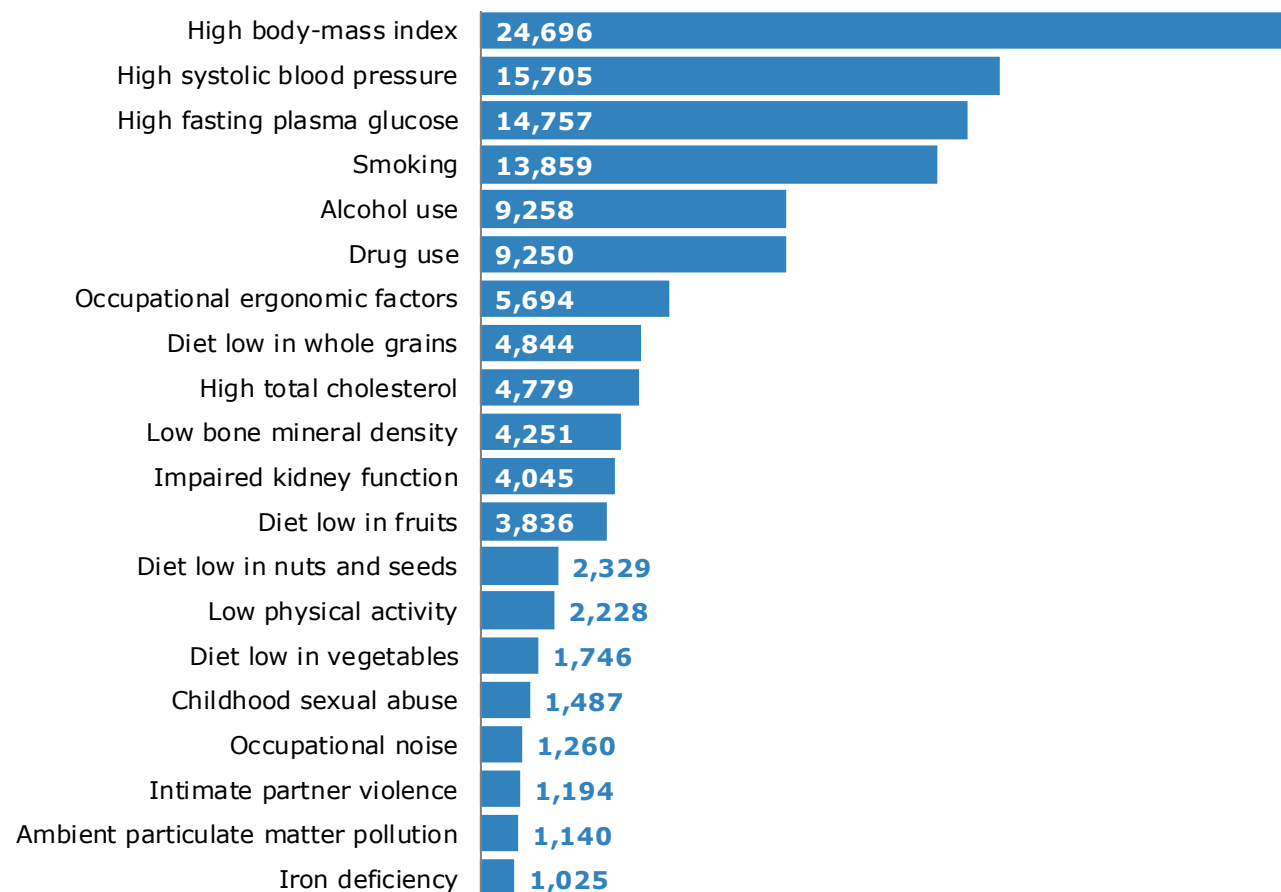


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Top 20 Global Burden of Disease identified risk factors for years lived with disability (YLD), count of YLDs, all persons, all ages, Wales, 2016

Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Smoking and high blood pressure are the leading risk factor for years of life lost (YLL). High BMI, high cholesterol and alcohol use are also substantial risk factors for YLL.

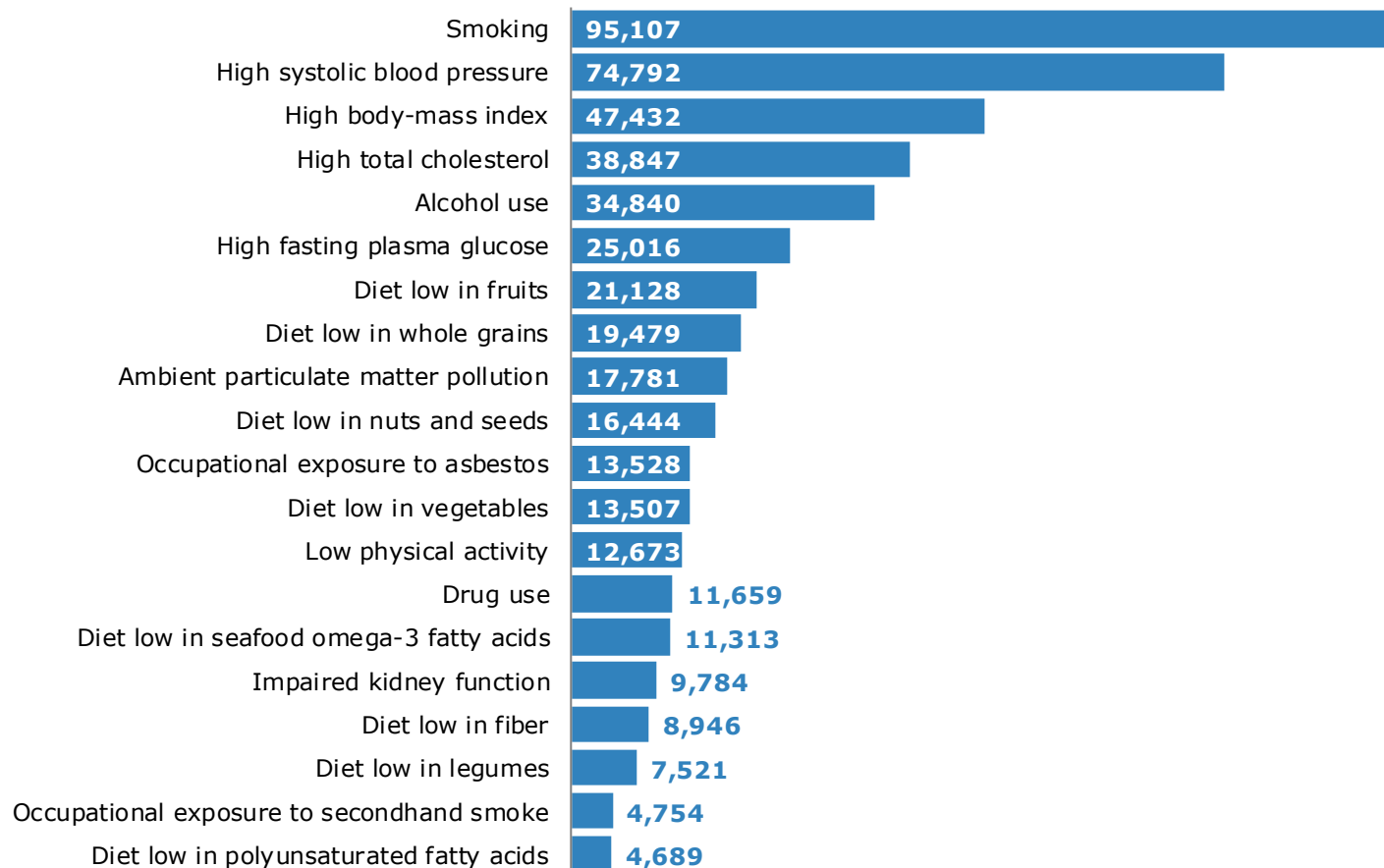


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Top 20 Global Burden of Disease identified risk factors for years of life lost (YLL), counts, all persons, all ages, Wales, 2016

Produced by Public Health Wales Observatory, using Global Health Data Exchange (IHME)



Smoking prevalence and drinking above guidelines have both decreased in the last 7 years.

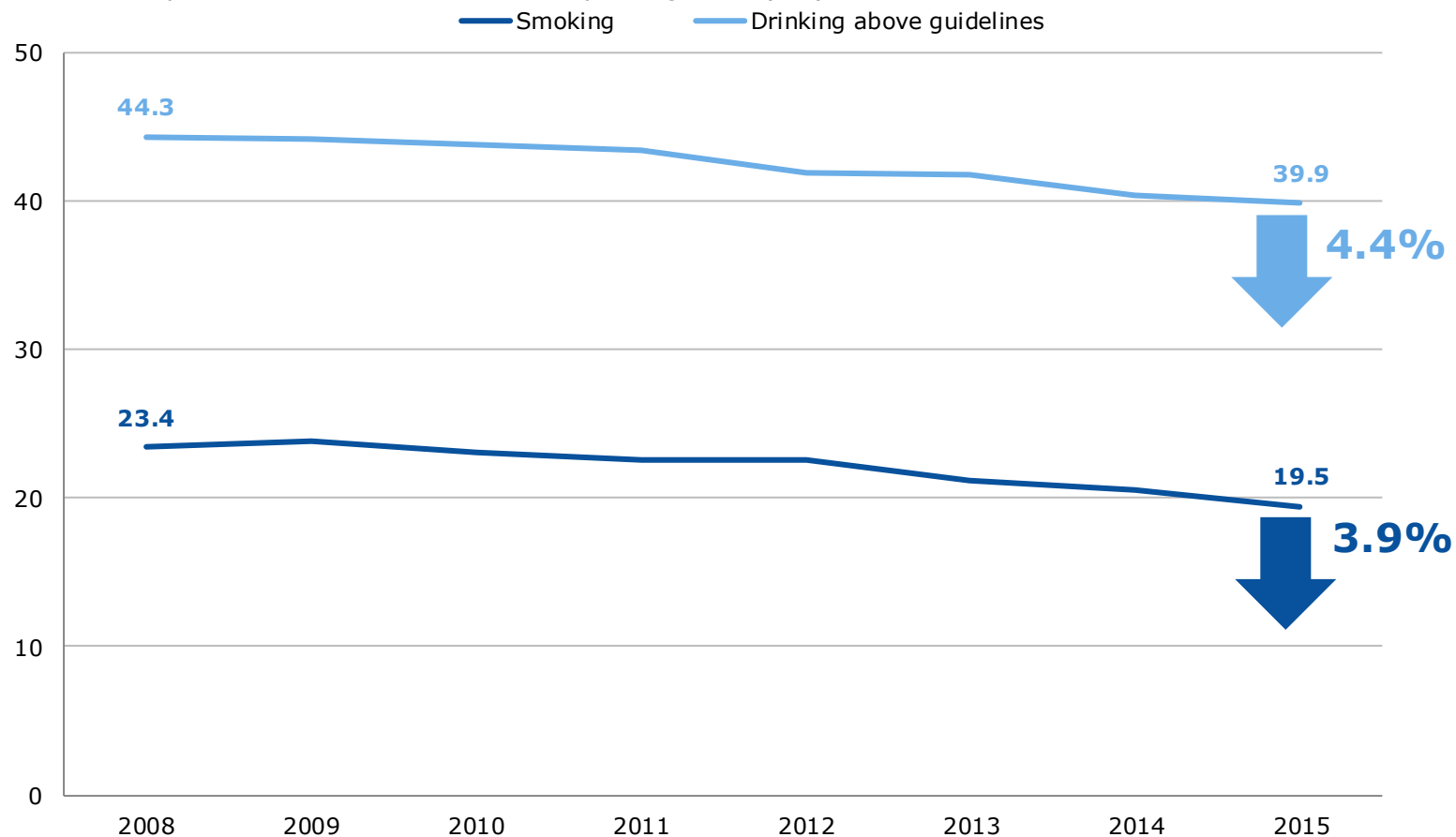


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Negative health behaviours in adults, age-standardised percentage, all persons aged 16+, Wales, 2008-2015

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



Although Wales has a lower smoking prevalence than Scotland for females, it is higher than England and Northern Ireland. Wales has the second lowest smoking prevalence of any UK nation for males.

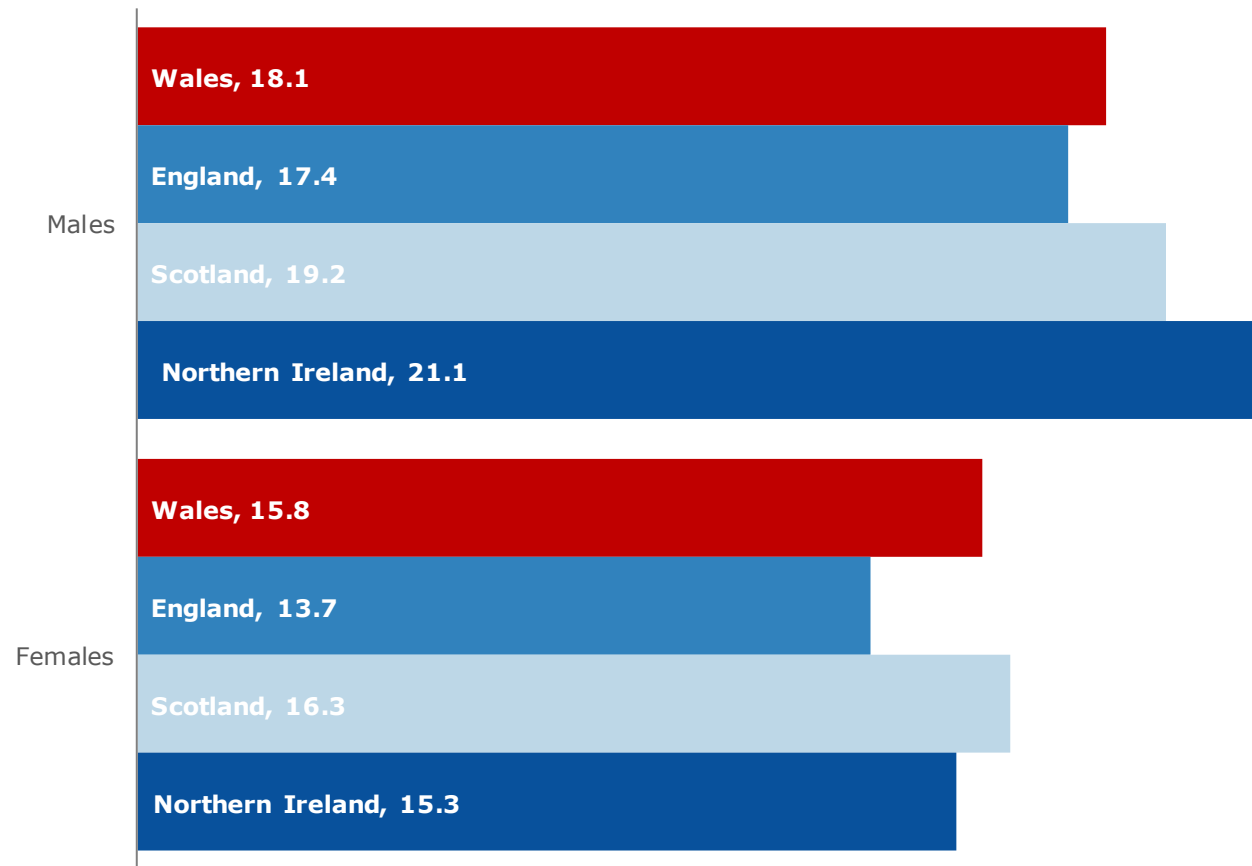


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Percentage of adults reporting to be a current smoker, males and females aged 18+, UK nations, 2016

Produced by Public Health Wales Observatory, using APS (ONS)



Reported smoking amongst adults is 2.4 times higher in the most deprived fifth than the least deprived fifth. However, adults reporting drinking above guidelines is highest in the least deprived fifth of Wales.

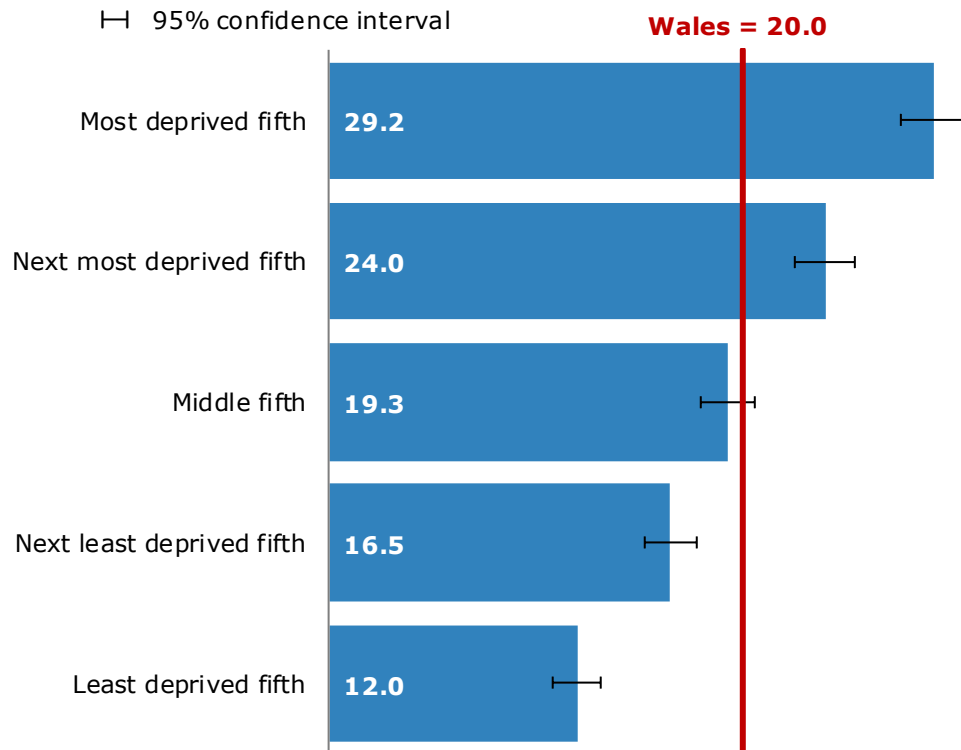


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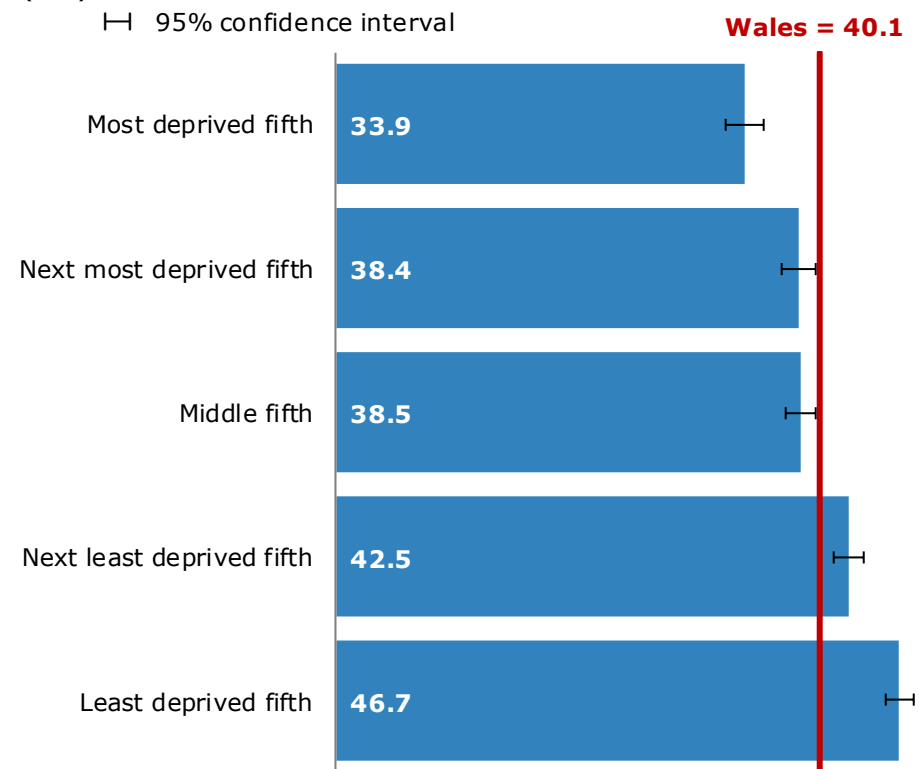
Adults that reported being a current smoker, age-standardised percentage, all persons aged 16+, Wales by deprivation fifth, 2014-15

Produced by Public Health Wales Observatory, using WHS & WIMD 2014 (WG)



Adults that reported drinking above guidelines, age-standardised percentage, all persons aged 16+, Wales by deprivation fifth, 2014-15

Produced by Public Health Wales Observatory, using WHS & WIMD 2014 (WG)



Smoking rates are nearly 3 times higher in the most deprived fifth of Wales compared to the least deprived fifth of Wales. The gap has narrowed in the last 8 years.

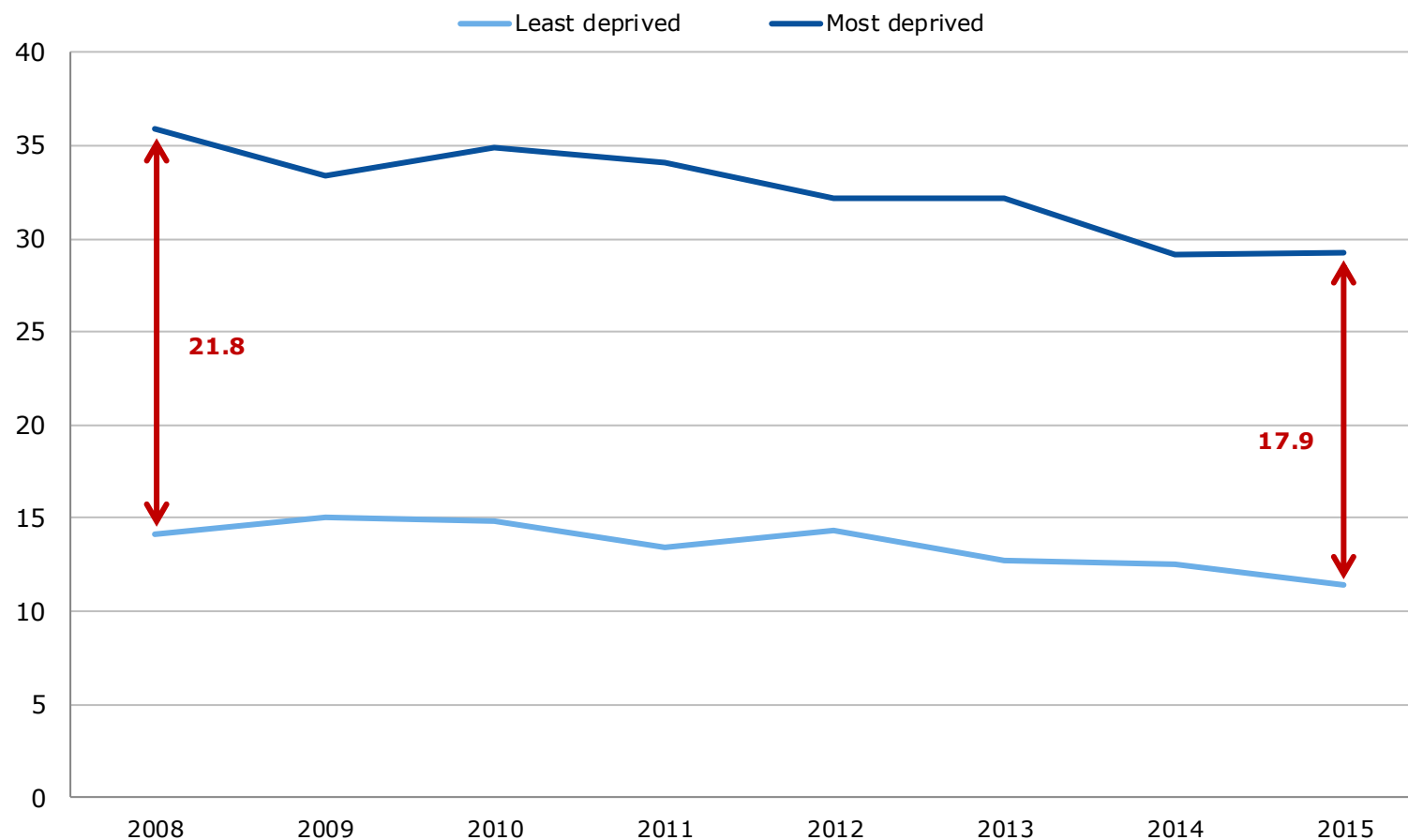


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Adults who reported being a current smoker, age-standardised percentage, all persons aged 16+, Wales by deprivation fifth, 2008-2015

Produced by Public Health Wales Observatory, using WHS & WIMD 2014 (WG)



Over the latest 8 year period the percentage of adults drinking above guidelines was consistently higher in the least deprived fifth of Wales compared to the most deprived fifth of Wales.

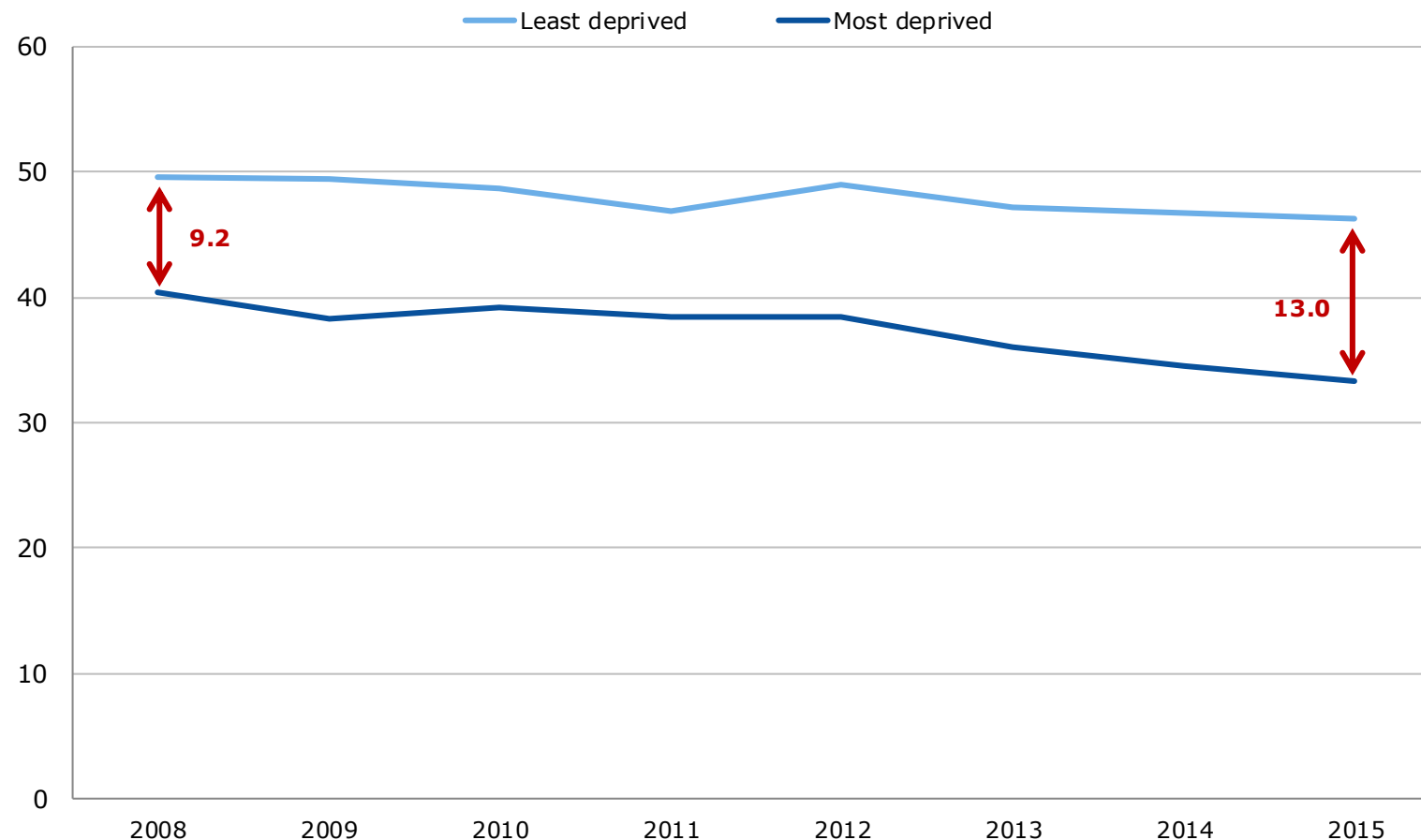


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Adults who reported drinking above guidelines, age-standardised percentage, all persons aged 16+, Wales by deprivation fifth, 2008-2015

Produced by Public Health Wales Observatory, using WHS & WIMD 2014 (WG)



Alcohol-related mortality rates are much higher in the most deprived fifth compared to the least deprived fifth of Wales, despite the opposite relationship for drinking above guidelines.



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Alcohol-specific and alcohol-attributable mortality by deprivation fifth, European age-standardised rate (EASR) per 100,000*, all persons, all ages, Wales, 2003-2012

Produced by Public Health Wales Observatory, using ADDE, MYE (ONS), fractions (PHE) & WIMD 2011 (WG)

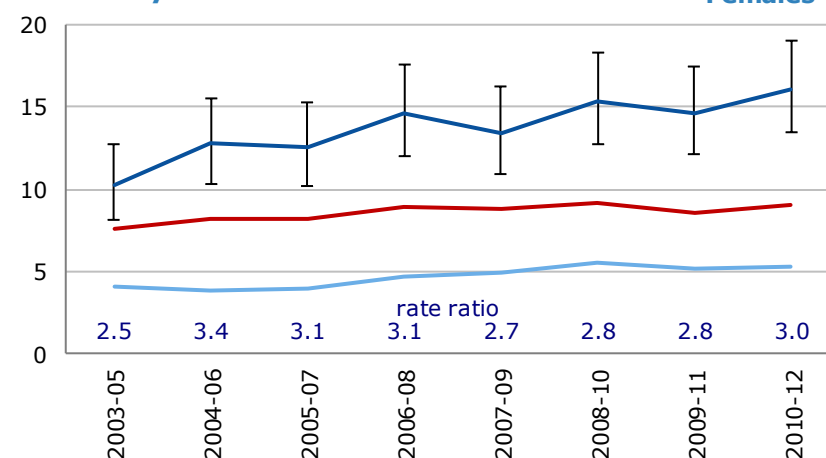
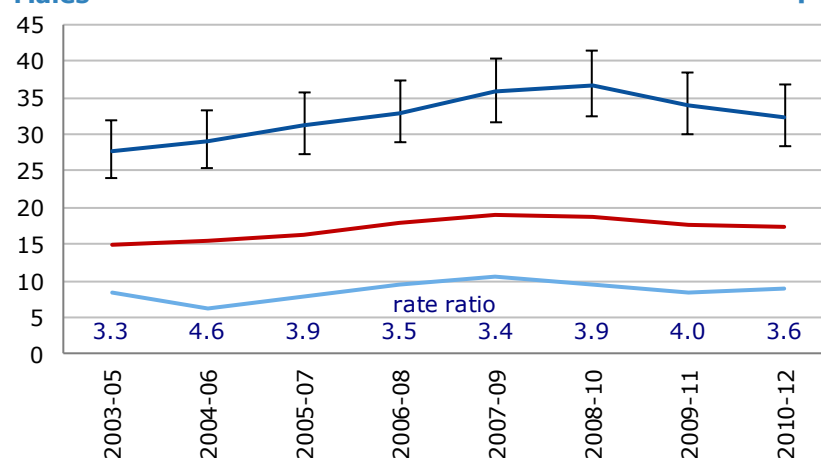
— Most deprived — Wales — Least deprived

┆ 95% confidence interval

Males

Alcohol-specific mortality

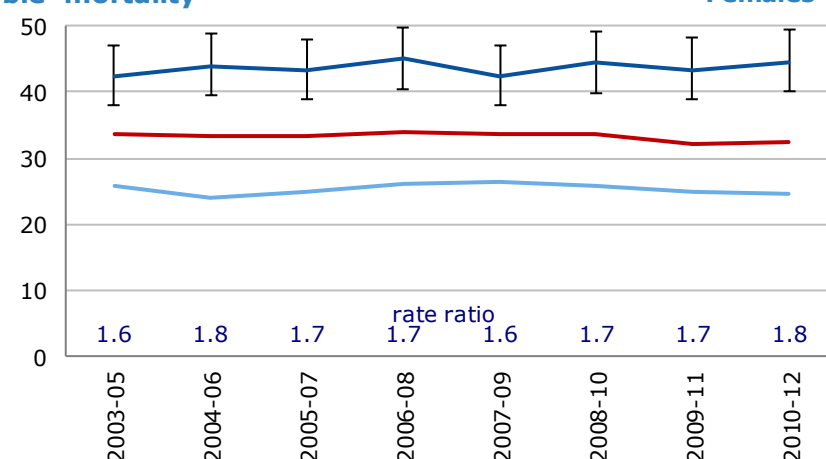
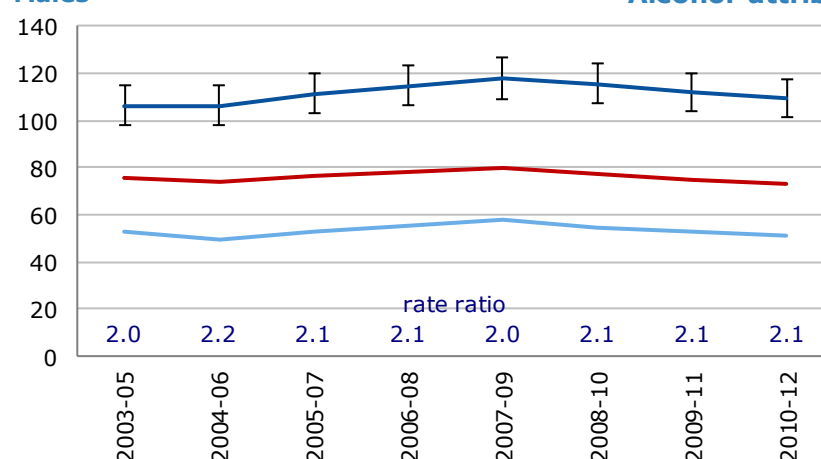
Females



Males

Alcohol-attributable mortality

Females

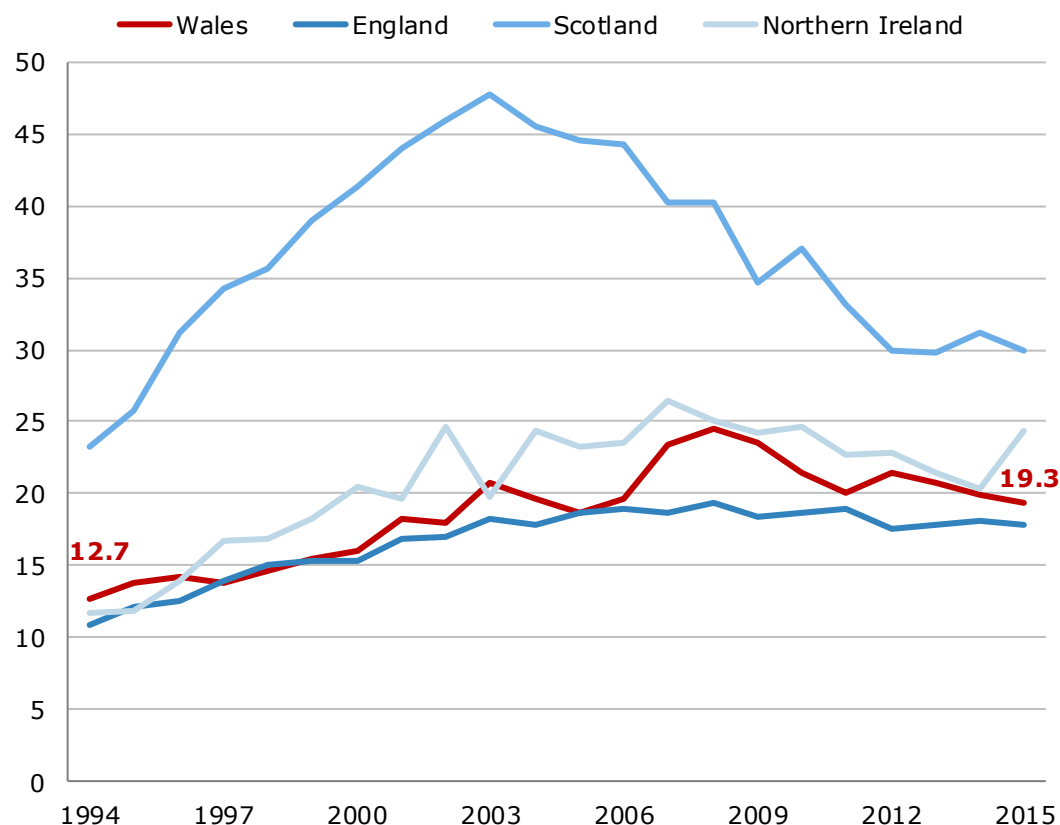


*Using the 2013 European Standard Population

Alcohol related deaths are rising in females in Wales, but have been slowly falling in males since 2007. Since 2003 there has been a dramatic fall in alcohol-related deaths for males in Scotland.

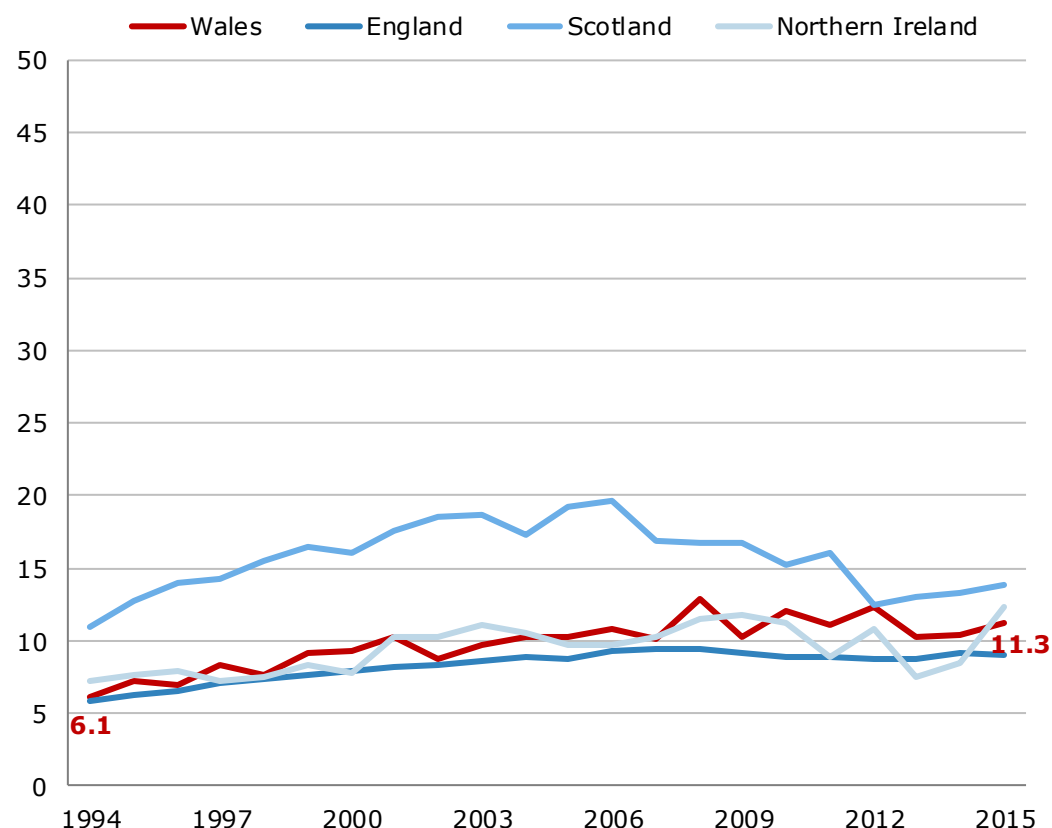
Alcohol-related deaths, European age-standardised (EASR) rate per 100,000, males all ages, UK nations, 1994-2015

Produced by Public Health Wales Observatory, using ONS, NRS & NIRSA



Alcohol-related deaths, European age-standardised (EASR) rate per 100,000, females all ages, UK nations, 1994-2015

Produced by Public Health Wales Observatory, using ONS, NRS & NIRSA



The percentage of adults reporting consumption of fruit and vegetables is greater in the least deprived fifth of Wales compared to the most deprived fifth of Wales. The gap has widened over the last 8 years.

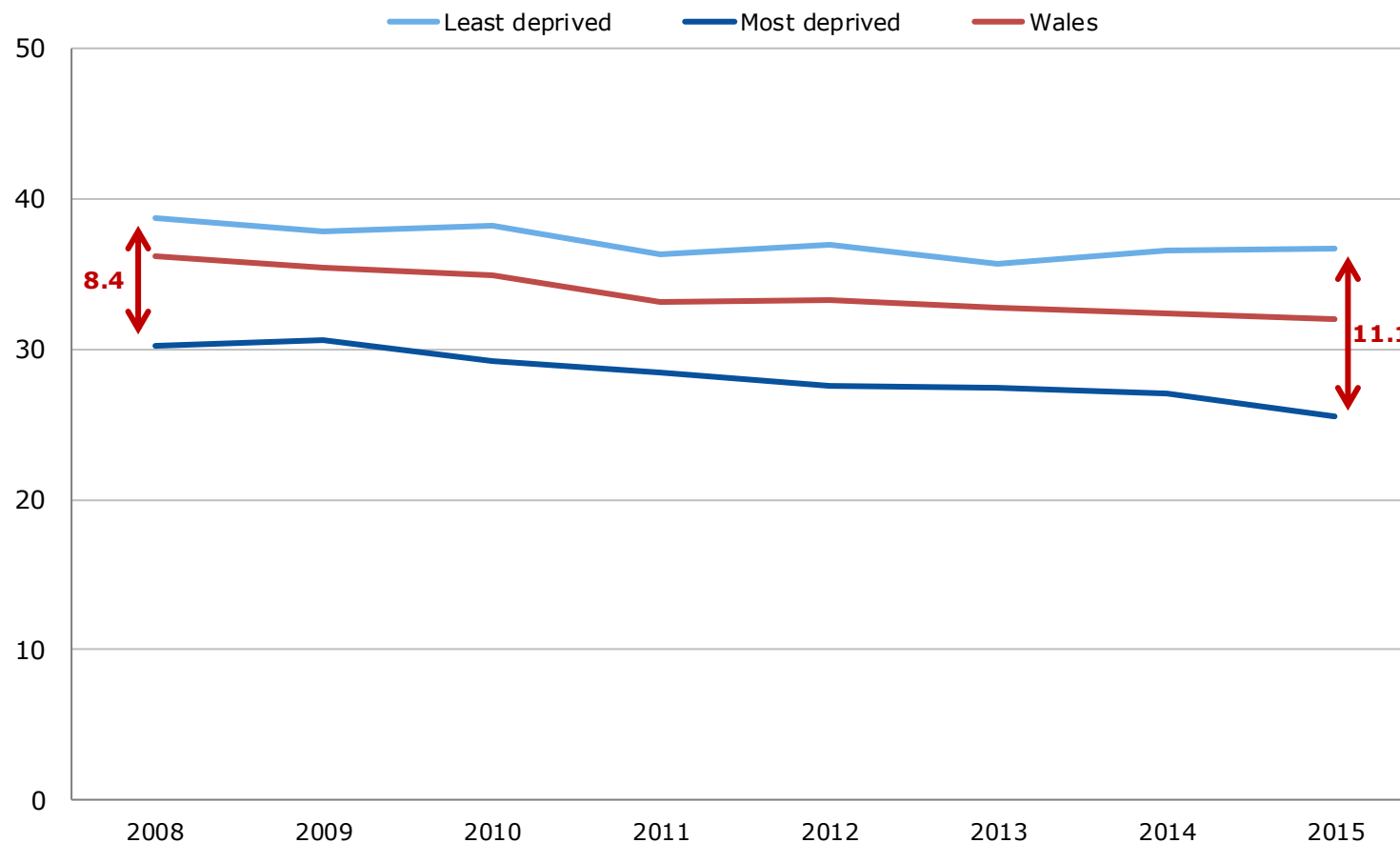


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Adults who reported eating 5 portions of fruit or vegetables the previous day, age-standardised percentage, all persons aged 16+, Wales by deprivation fifth, 2008-2015

Produced by Public Health Wales Observatory, using WHS & WIMD 2014 (WG)



Wales has a lower percentage of males and females that meet recommended physical activity guidelines than England and Scotland.

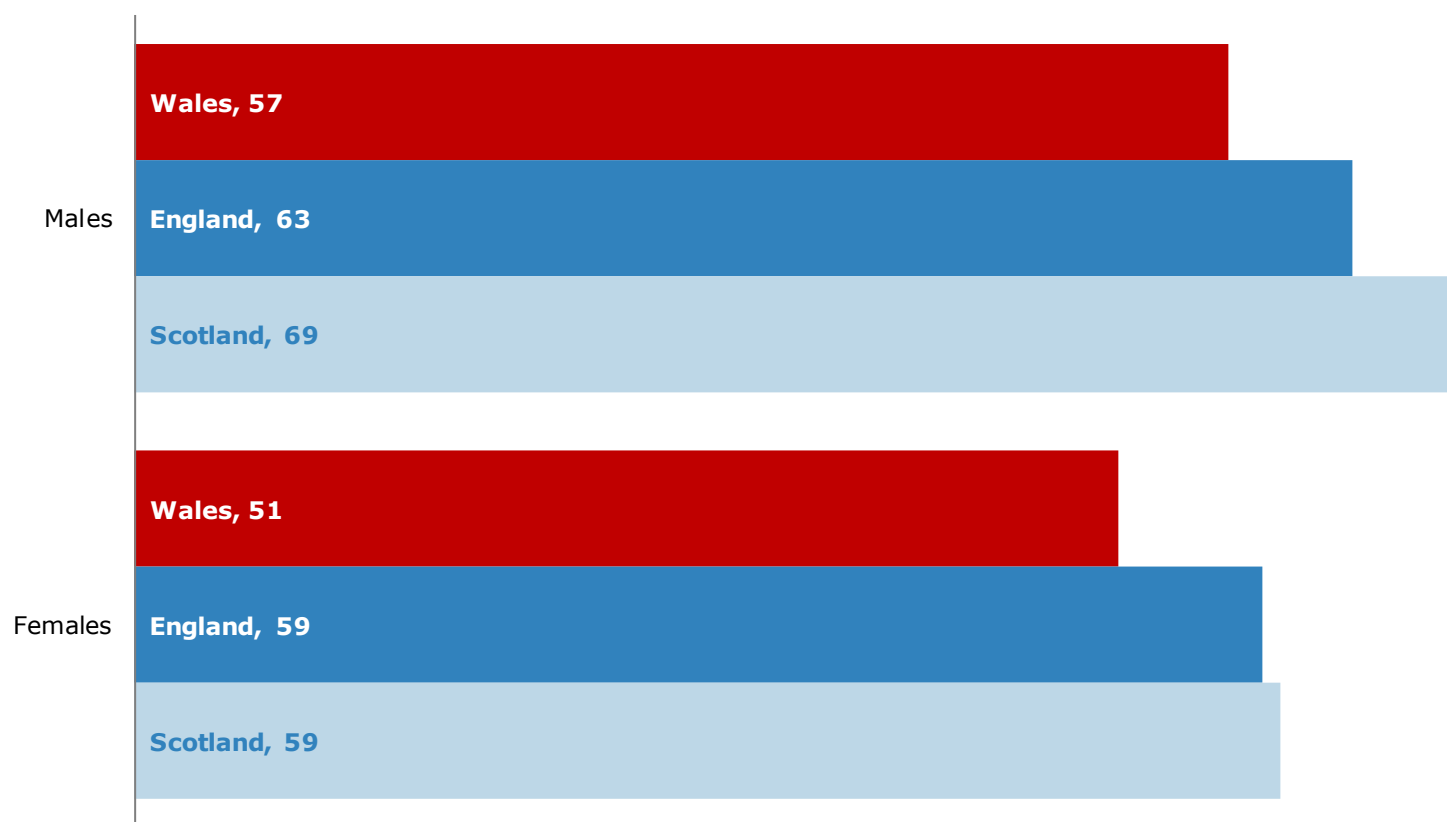


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Percentage of adults reporting to meet recommended physical activity guidelines, males and females aged 16+, Wales (2016/17), England (2015/16), Scotland (2016)

Produced by Public Health Wales Observatory, using NSW (WG), ALS (Sport England), SHeS (SG)



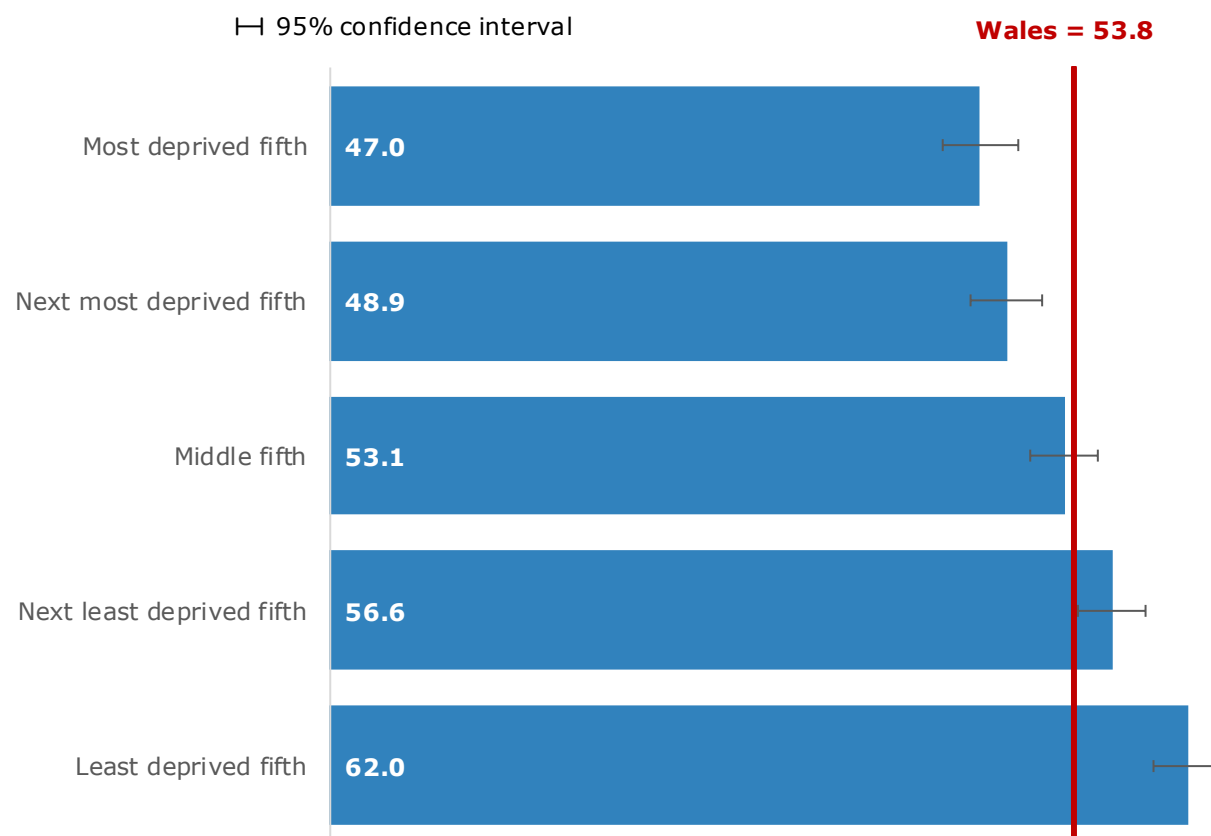
Less than 50% of adults in the most deprived fifth of Wales achieve the recommended physical activity guidelines compared to over 60% in the least deprived fifth of Wales.



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Adults that reported meeting recommended physical activity guidelines, age-standardised percentage all persons aged 16+, Wales by deprivation fifth, 2016/17
Produced by Public Health Wales Observatory, using NSW & WIMD 2014 (WG)



There has been a small increase in the percentage of overweight or obese adults since 2008. Similarly, the gap between the least and most deprived fifths of Wales has widened by 2%.

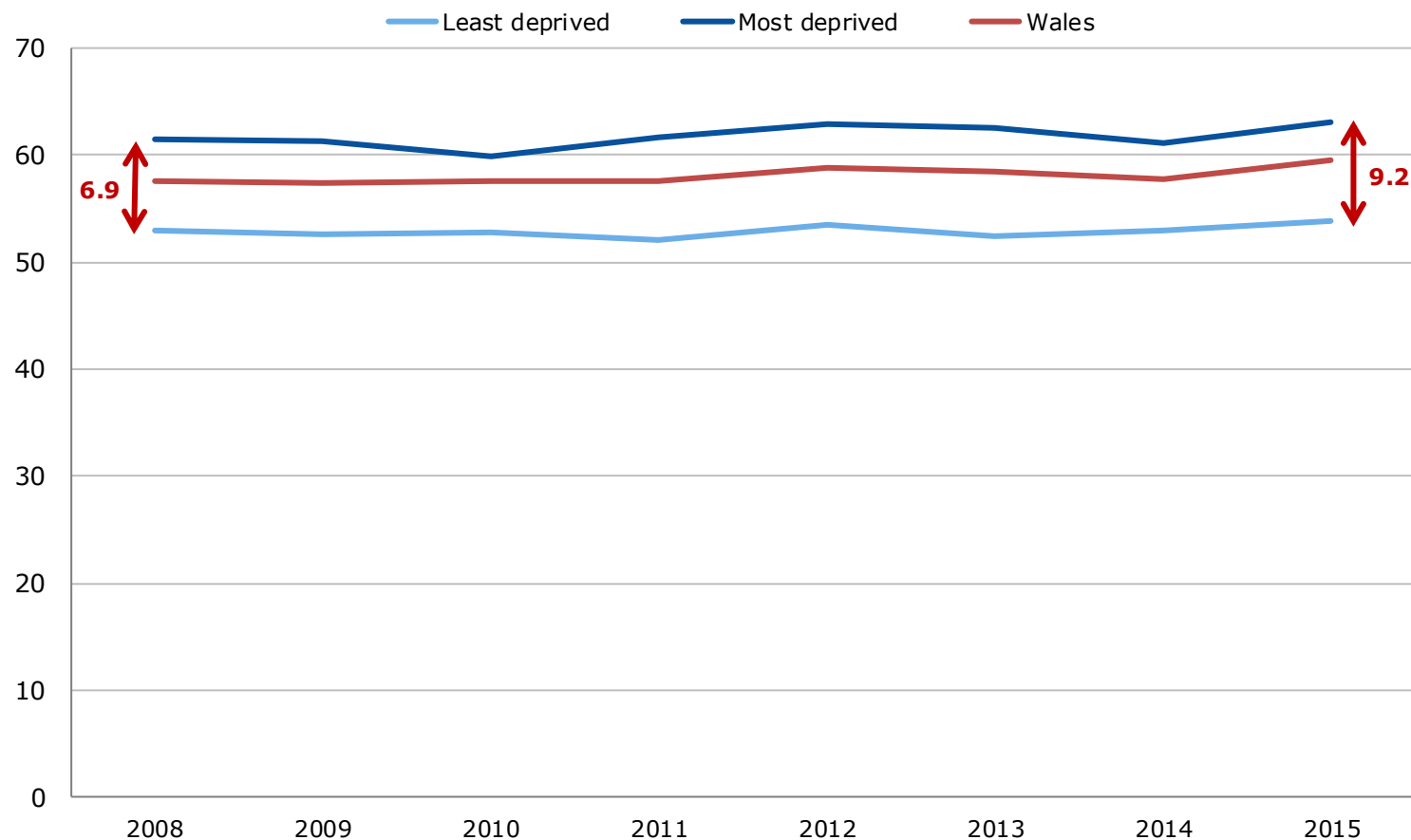


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Adults who were overweight or obese, age-standardised percentage, all persons aged 16+, Wales by deprivation fifth, 2008-2015

Produced by Public Health Wales Observatory, using WHS & WIMD 2014 (WG)



Nearly two thirds of men and over half of women in Wales are overweight or obese. This is similar to the other UK nations but much higher than Sweden.

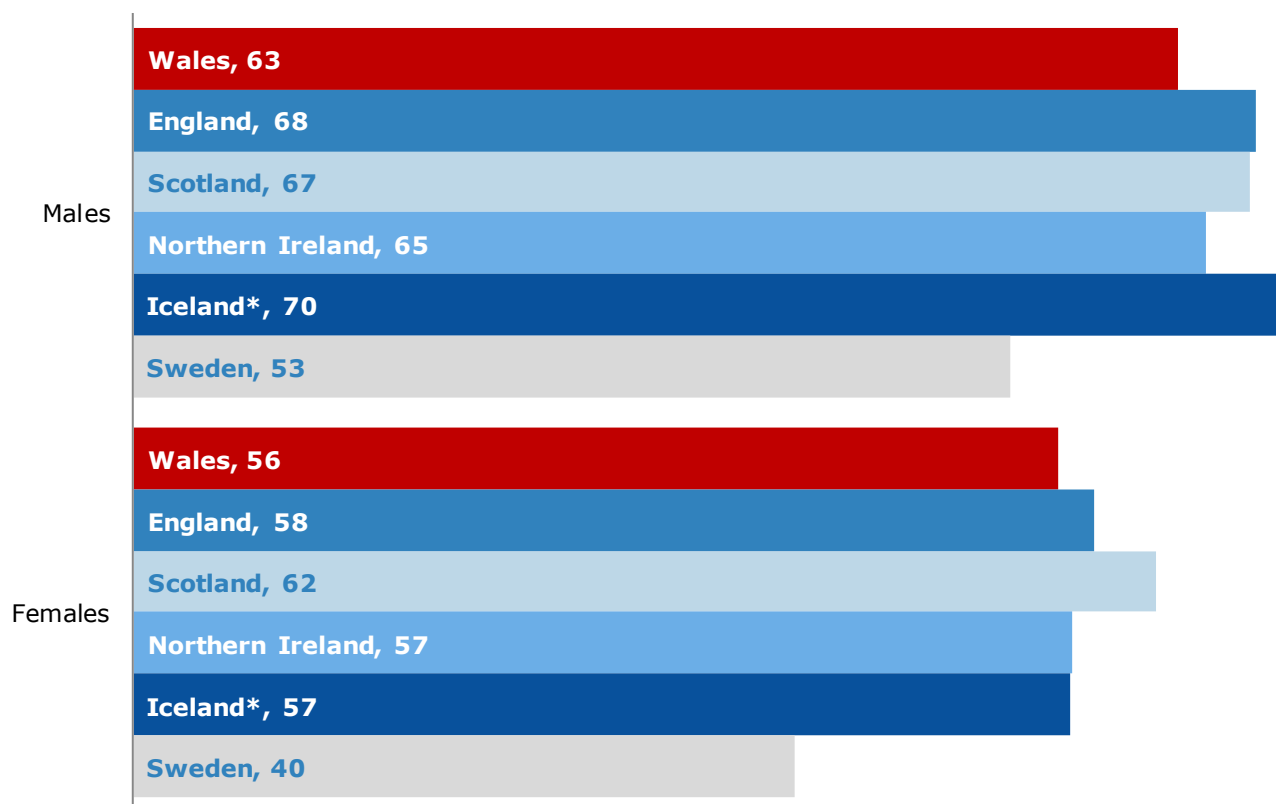


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Percentage of adults reporting to be overweight or obese, males and females aged 16+, UK nations (2015), Iceland (2012) & Sweden (2014)

Produced by Public Health Wales Observatory, using WHS (WG), HSE (HSCIC), SHS (SG), HSNI (NIRSA) & OECD



* Males and females aged 18-84

Please note: England BMI data have been calculated using nurse measured heights and weights. The other surveys use self-reported data which can potentially underestimate BMI due to reporting bias (overestimating height and underestimating weight).

1. Demography
2. Life expectancy
3. Burden of disease
4. Health behaviours
- 5. Healthy start**
6. Living conditions
7. Projections
8. Emerging threats

Infant mortality in Wales is similar to England and Scotland but lower than Northern Ireland.

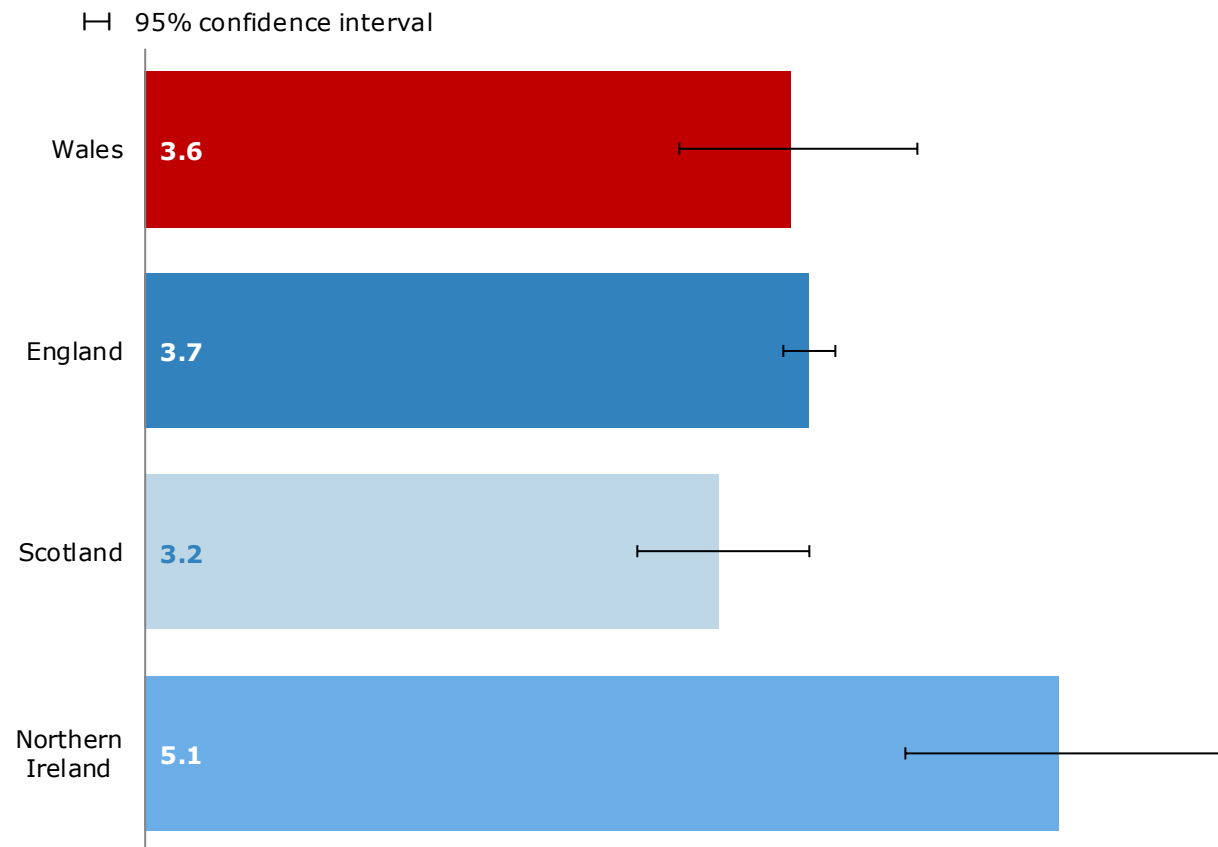


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Infant mortality, crude rate per 1,000 live births, UK nations, 2015

Produced by Public Health Wales Observatory, using childhood mortality data (ONS)



The overall percentage of babies born with a low birth weight has remained relatively stable however there is a clear gradient across the deprivation fifths of Wales.

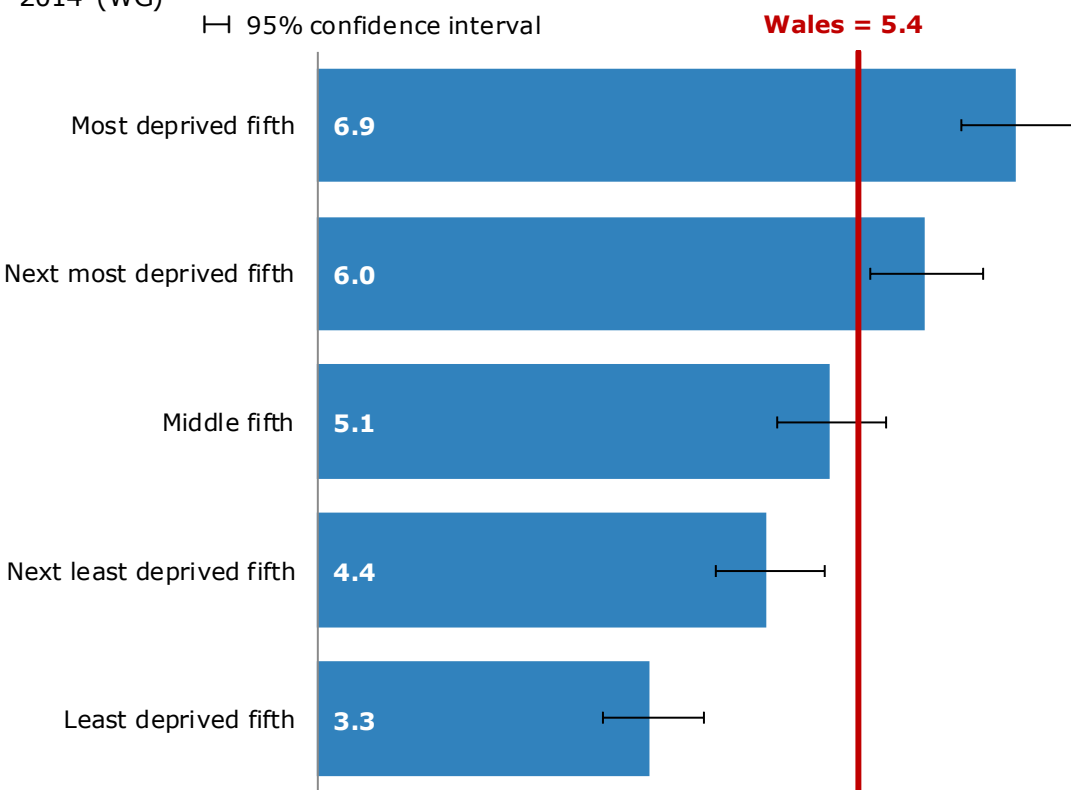


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Babies with low birth weight* by deprivation fifth, percentage, Wales, 2016

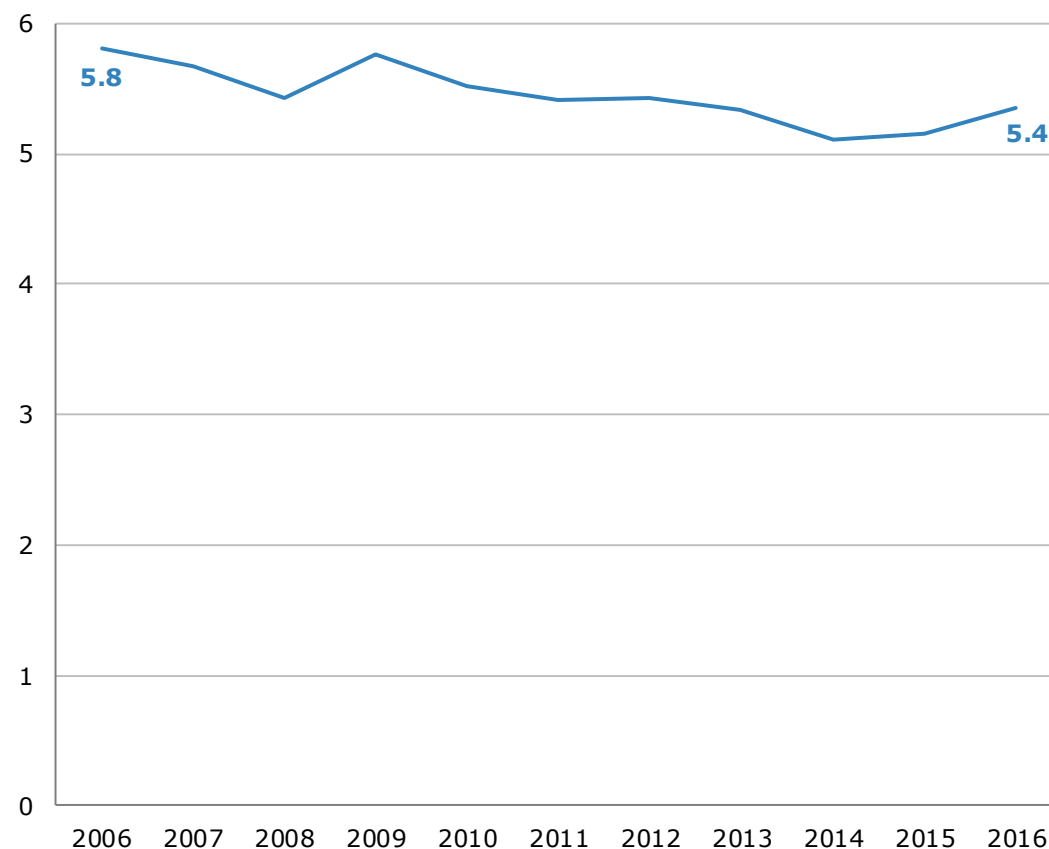
Produced by Public Health Wales Observatory, using NCCHD (NWIS) & WIMD 2014 (WG)



* Birth weight below 2,500g

Babies with low birth weight*, percentage, Wales, 2006-2016

Produced by Public Health Wales Observatory, using NCCHD (NWIS)



* Birth weight below 2,500g

22% of babies are breastfed at 10 days in the most deprived fifth of Wales compared with 47% in the least deprived fifth of Wales.

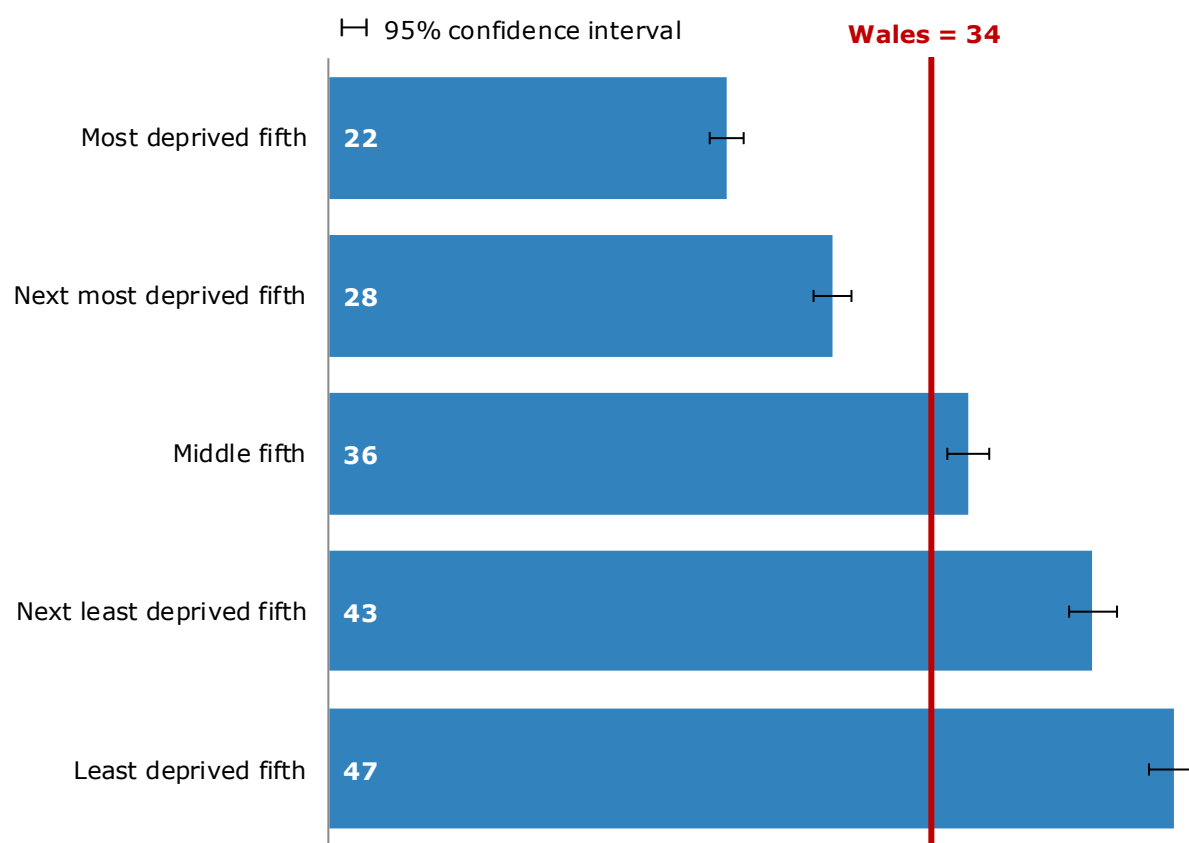


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Babies who were exclusively breastfed at 10 days by deprivation fifth, percentage, Wales, 2016

Produced by Public Health Wales Observatory, using NCCHD (NWIS) & WIMD 2014 (WG)



The immunisation rate has risen since 2008/09 however it remains considerably lower than the target percentage uptake of 95%.

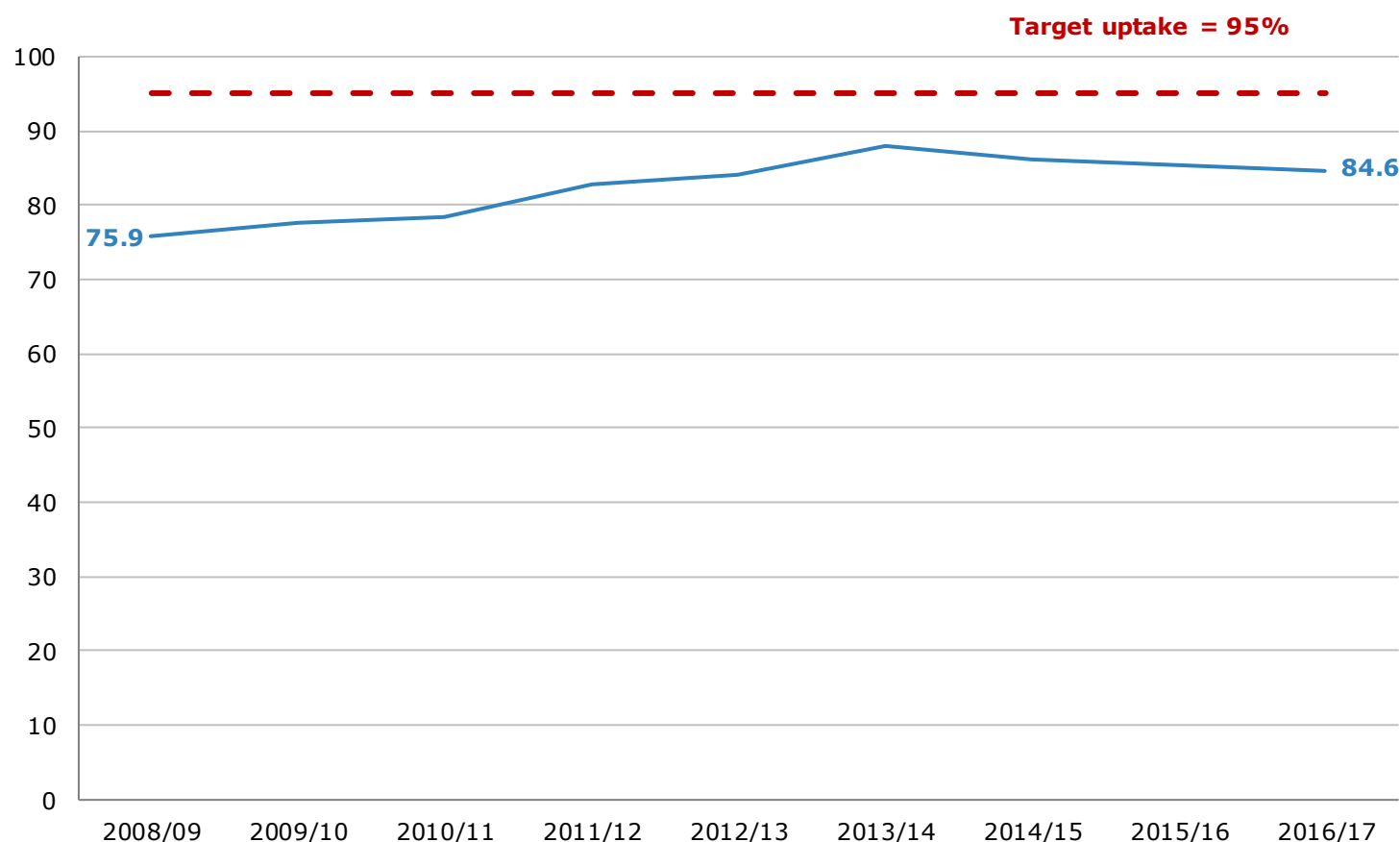


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Percentage of all children who were up to date with immunisations by age 4, Wales, 2008/09-2016/17

Produced by Public Health Wales Observatory, using COVER data provided by VPDP (PHW)



Children in the most deprived fifth of Wales have on average over twice as many decayed, missing or filled teeth than those in the least deprived fifth of Wales.

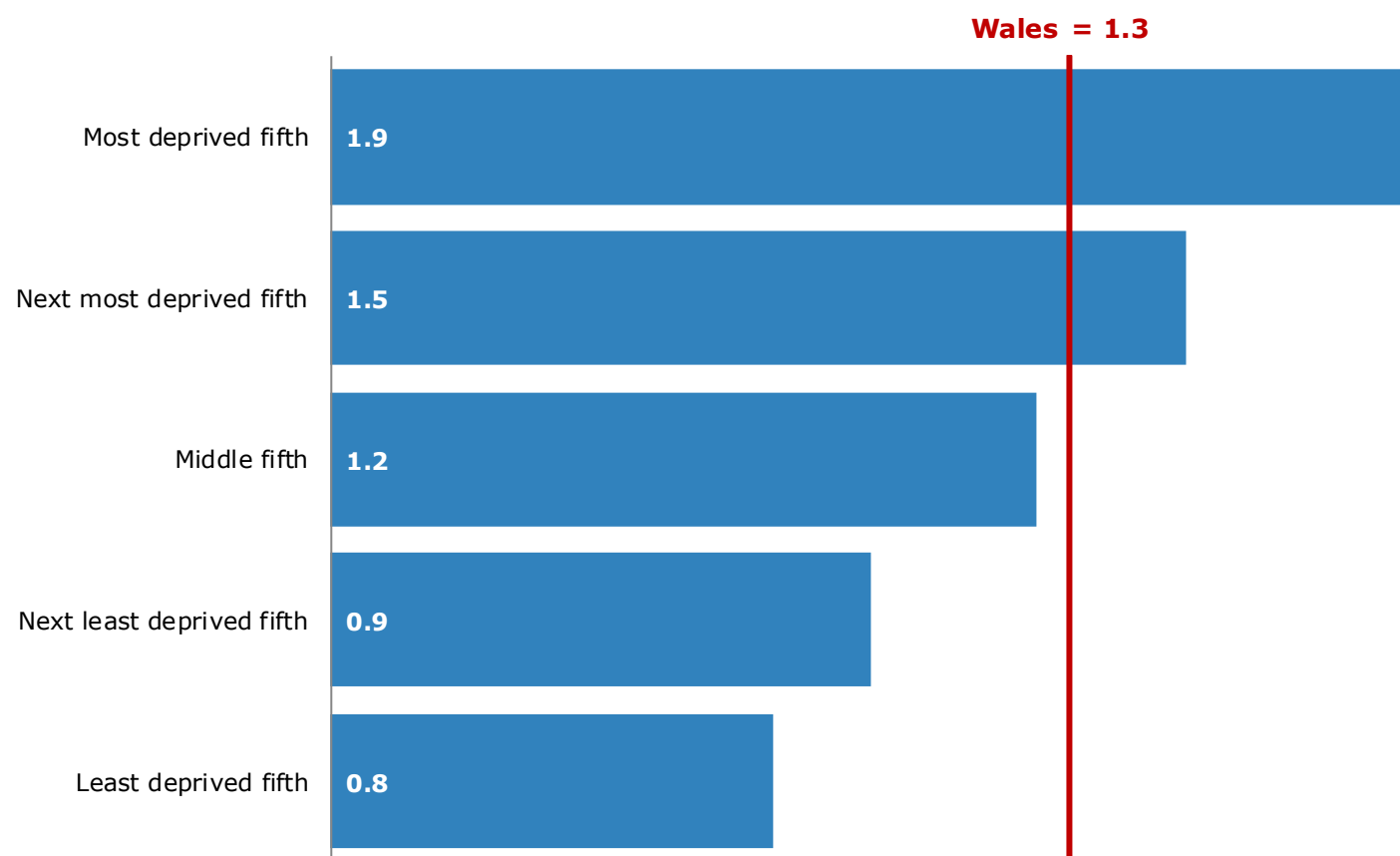


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Decayed, missing or filled teeth (dmft) by deprivation fifth, average count, all children aged 5, Wales, 2014-15

Produced by Public Health Wales Observatory, using Welsh Dental Survey (WOHIU) & WIMD 2014 (WG)



Compared to England, Wales has a higher prevalence of children aged 4-5 years who are overweight or obese.

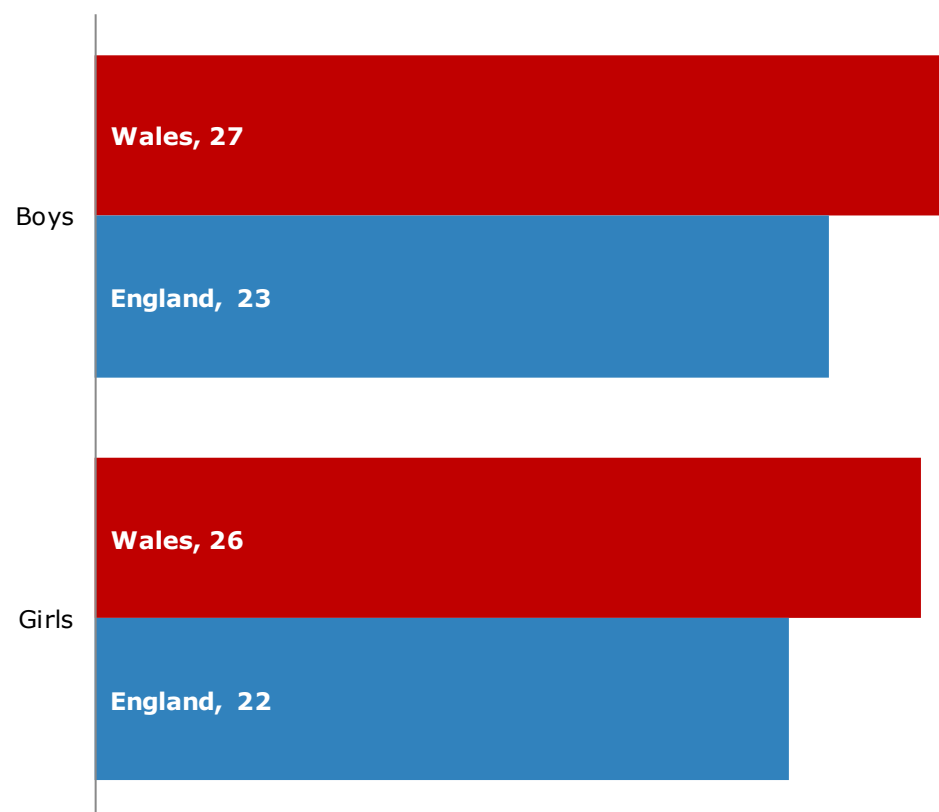


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Percentage of children who are overweight or obese, all children aged 4-5, Wales & England, 2015/16

Produced by Public Health Wales Observatory, using CMP (PHW & HSCIC)



Rates of overweight/obesity are generally higher in boys than girls. Wales has a higher percentage of 15 year olds that are overweight or obese compared to England, Scotland and Republic of Ireland.



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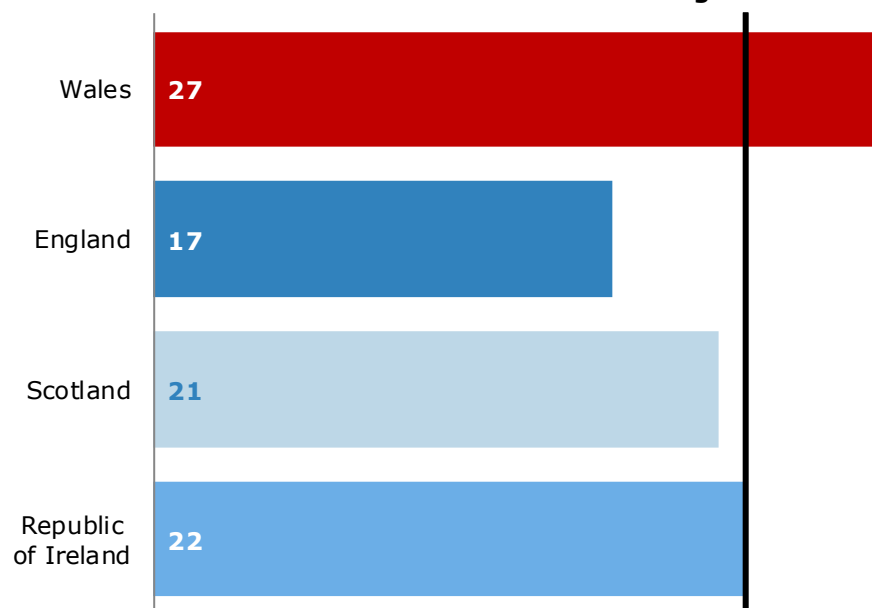
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Boys

Percentage overweight/obese, boys, aged 15, Wales, England, Scotland & Republic of Ireland, 2013/14

Produced by Public Health Wales Observatory, using HBSC (WHO)

HBSC average = 22

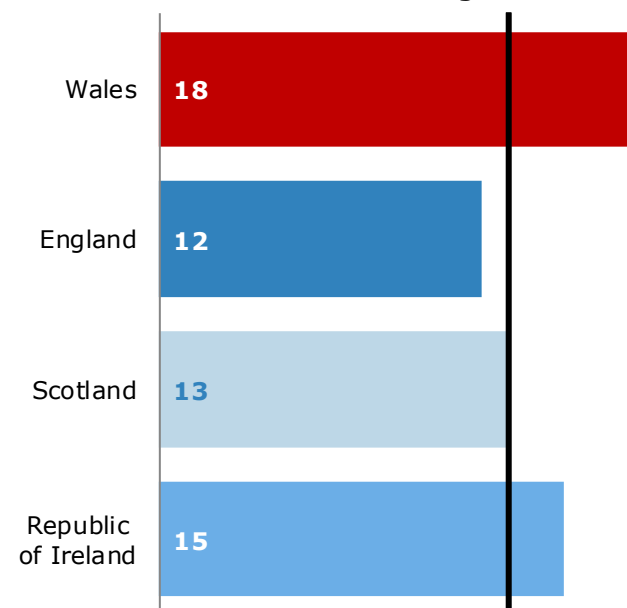


Girls

Percentage overweight/obese, girls, aged 15, Wales, England, Scotland & Republic of Ireland, 2013/14

Produced by Public Health Wales Observatory, using HBSC (WHO)

HBSC average = 13



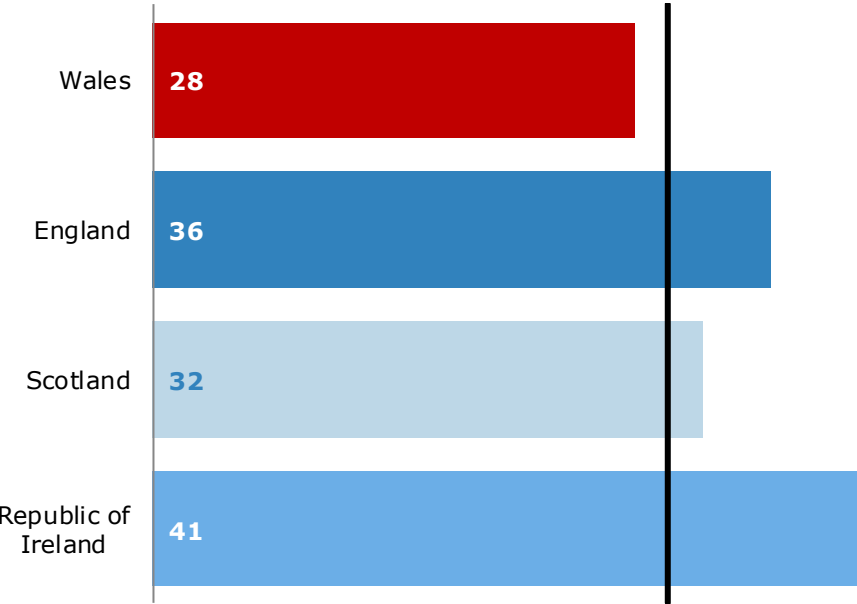
Less than a third of children in Wales eat a portion of vegetables once a day, lower than England, Scotland and Republic of Ireland.

Boys

Percentage eating veg once a day or more, boys, aged 15, Wales, England, Scotland & Republic of Ireland, 2013/14

Produced by Public Health Wales Observatory, using HBSC (WHO)

HBSC average = 30

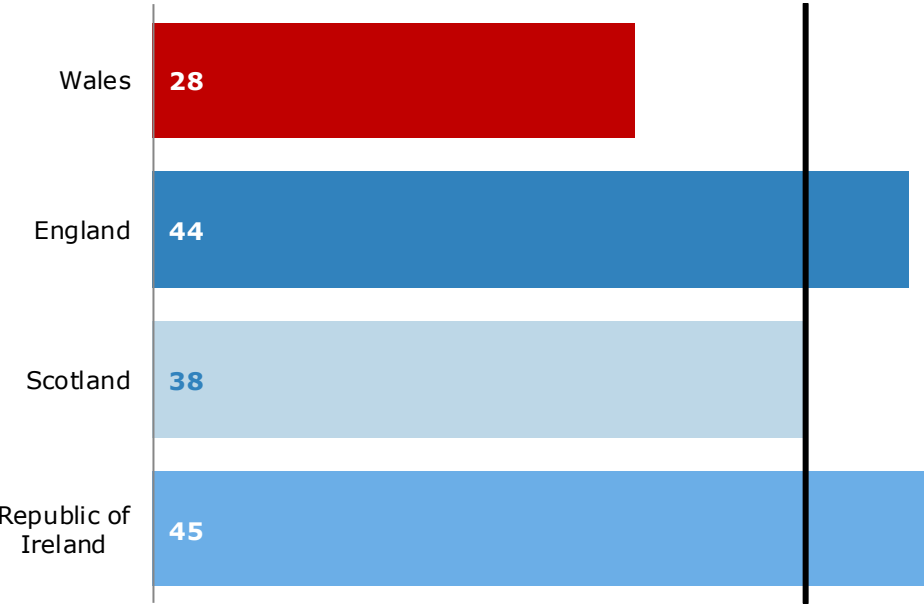


Girls

Percentage eating veg once a day or more, girls, aged 15, Wales, England, Scotland & Republic of Ireland, 2013/14

Produced by Public Health Wales Observatory, using HBSC (WHO)

HBSC average = 38



In Wales 7% of boys and 9% of girls aged 15 reported smoking at least once a week, both of which are lower than Scotland but higher than England.



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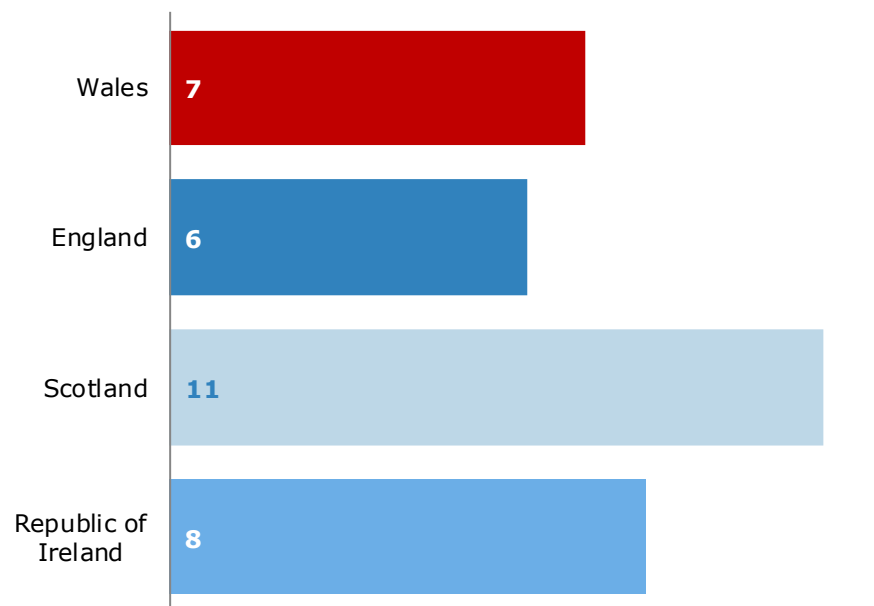
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Boys

Percentage smoking at least once a week, boys, aged 15, Wales, England, Scotland & Republic of Ireland, 2013/14

Produced by Public Health Wales Observatory, using HBSC (WHO)

HBSC average = 12

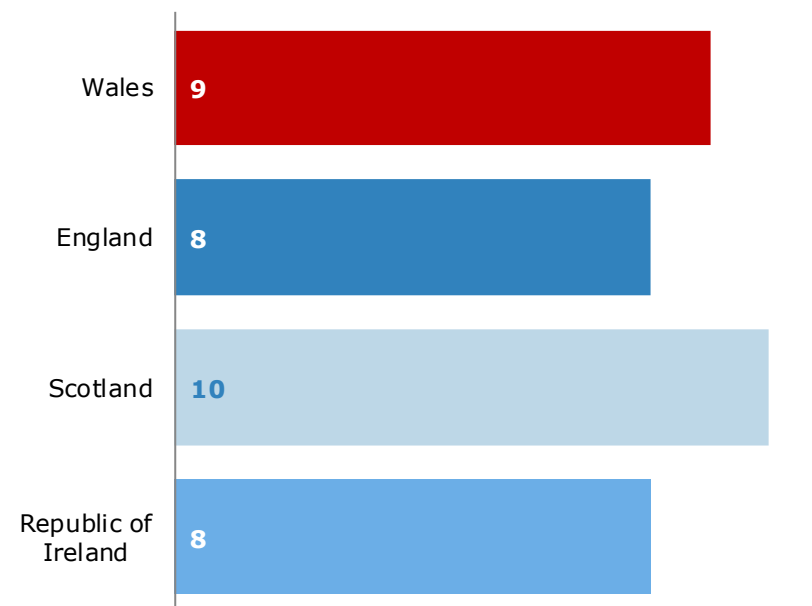


Girls

Percentage smoking at least once a week, girls, aged 15, Wales, England, Scotland & Republic of Ireland, 2013/14

Produced by Public Health Wales Observatory, using HBSC (WHO)

HBSC average = 11



Wales has a higher percentage of girls that reported drinking alcohol at least once a week than England, Scotland and Republic of Ireland. Only Scotland has a higher percentage of boys.



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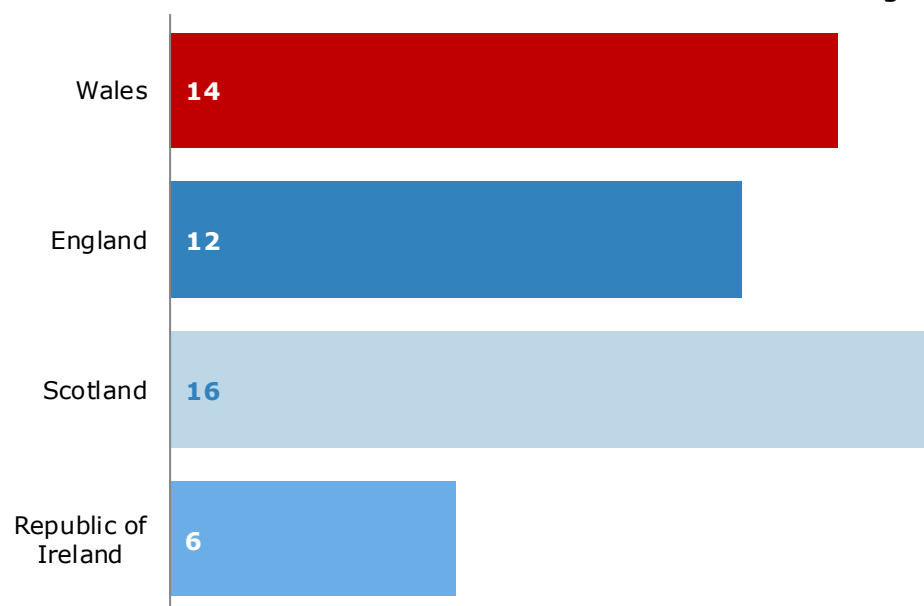
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Boys

Percentage drinking alcohol at least once a week, boys, aged 15, Wales, England, Scotland & Republic of Ireland, 2013/14

Produced by Public Health Wales Observatory, using HBSC (WHO)

HBSC average = 16

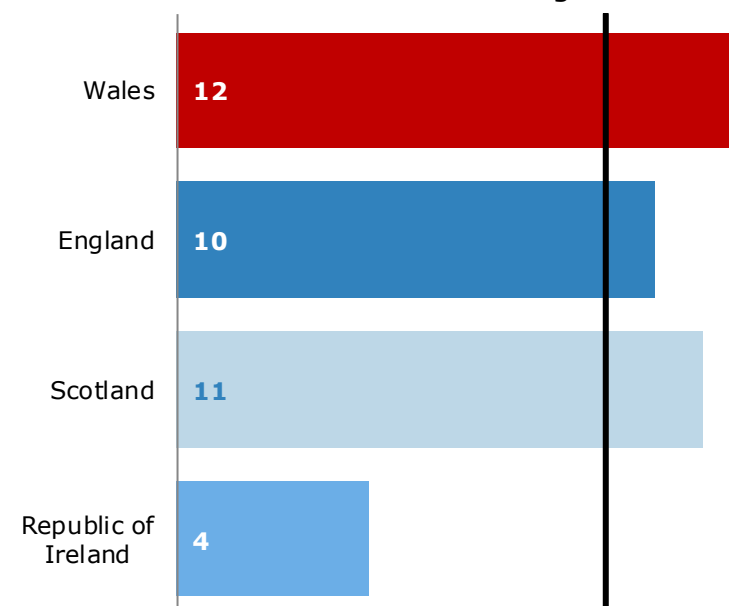


Girls

Percentage drinking alcohol at least once a week, girls, aged 15, Wales, England, Scotland & Republic of Ireland, 2013/14

Produced by Public Health Wales Observatory, using HBSC (WHO)

HBSC average = 9



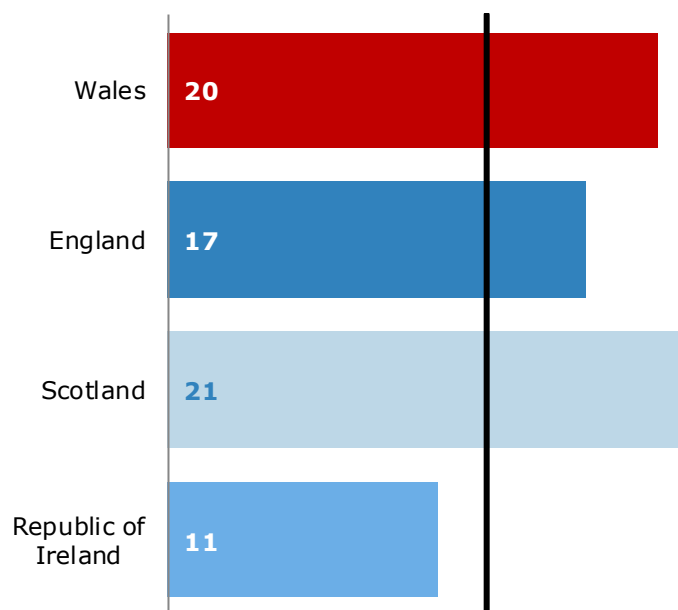
Wales has the highest percentage of girls that reported fair or poor health compared to England, Scotland and Republic of Ireland; Wales also has the second highest percentage for boys.

Boys

Percentage who reported fair/poor health, boys, aged 15, Wales, England, Scotland & Republic of Ireland, 2013/14

Produced by Public Health Wales Observatory, using HBSC (WHO)

HBSC average = 13

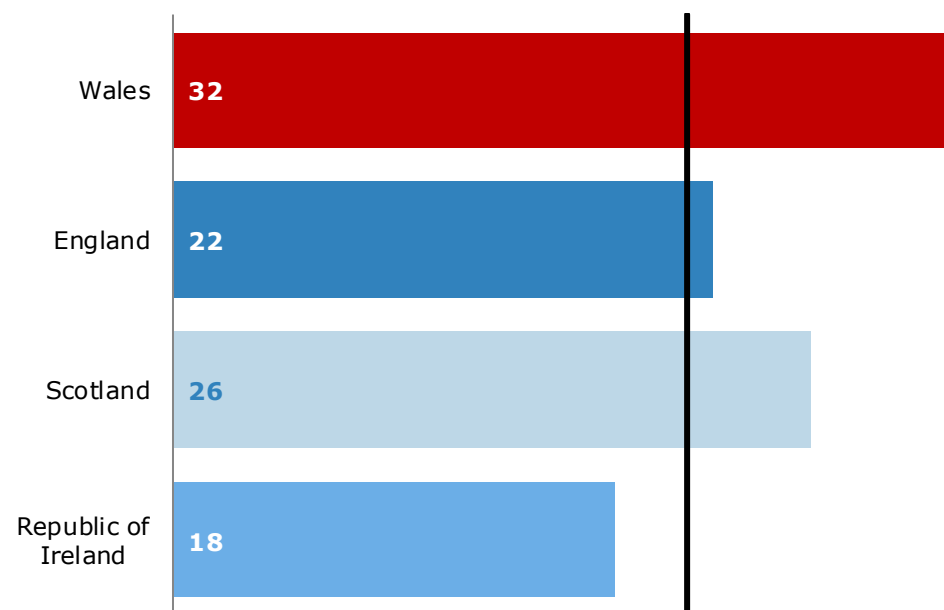


Girls

Percentage who reported fair/poor health, girls, aged 15, Wales, England, Scotland & Republic of Ireland, 2013/14

Produced by Public Health Wales Observatory, using HBSC (WHO)

HBSC average = 21



Wales has the lowest percentage of girls that are physically active for 60 minutes every day; only Scotland has a lower percentage for boys.



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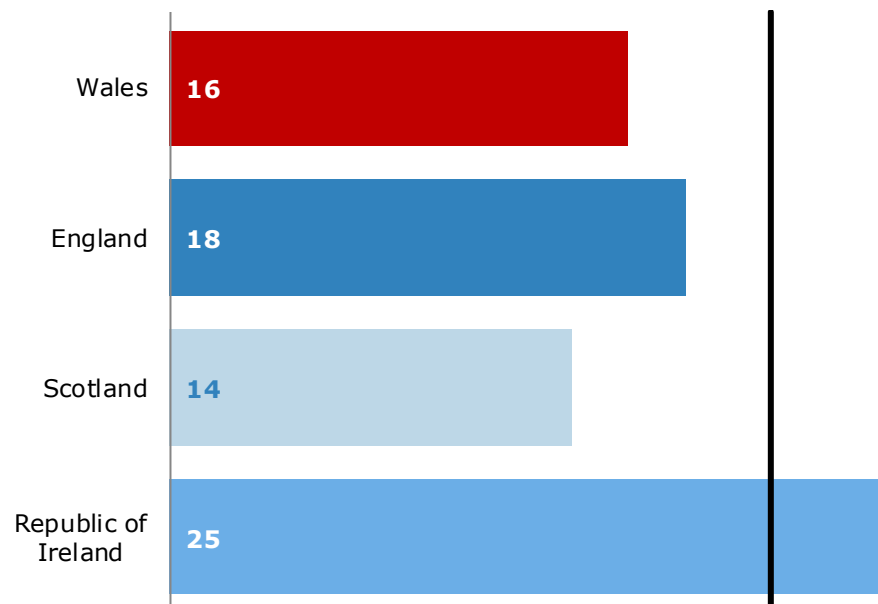
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Boys

Percentage active 60 mins every day, boys, aged 15, Wales, England, Scotland & Republic of Ireland, 2013/14

Produced by Public Health Wales Observatory, using HBSC (WHO)

HBSC average = 21

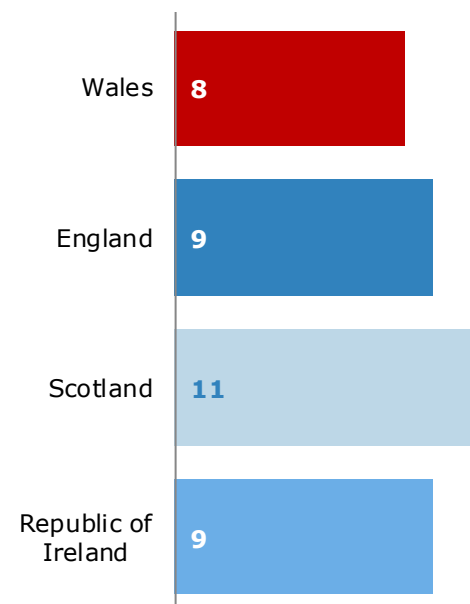


Girls

Percentage active 60 mins every day, girls, aged 15, Wales, England, Scotland & Republic of Ireland, 2013/14

Produced by Public Health Wales Observatory, using HBSC (WHO)

HBSC average = 11



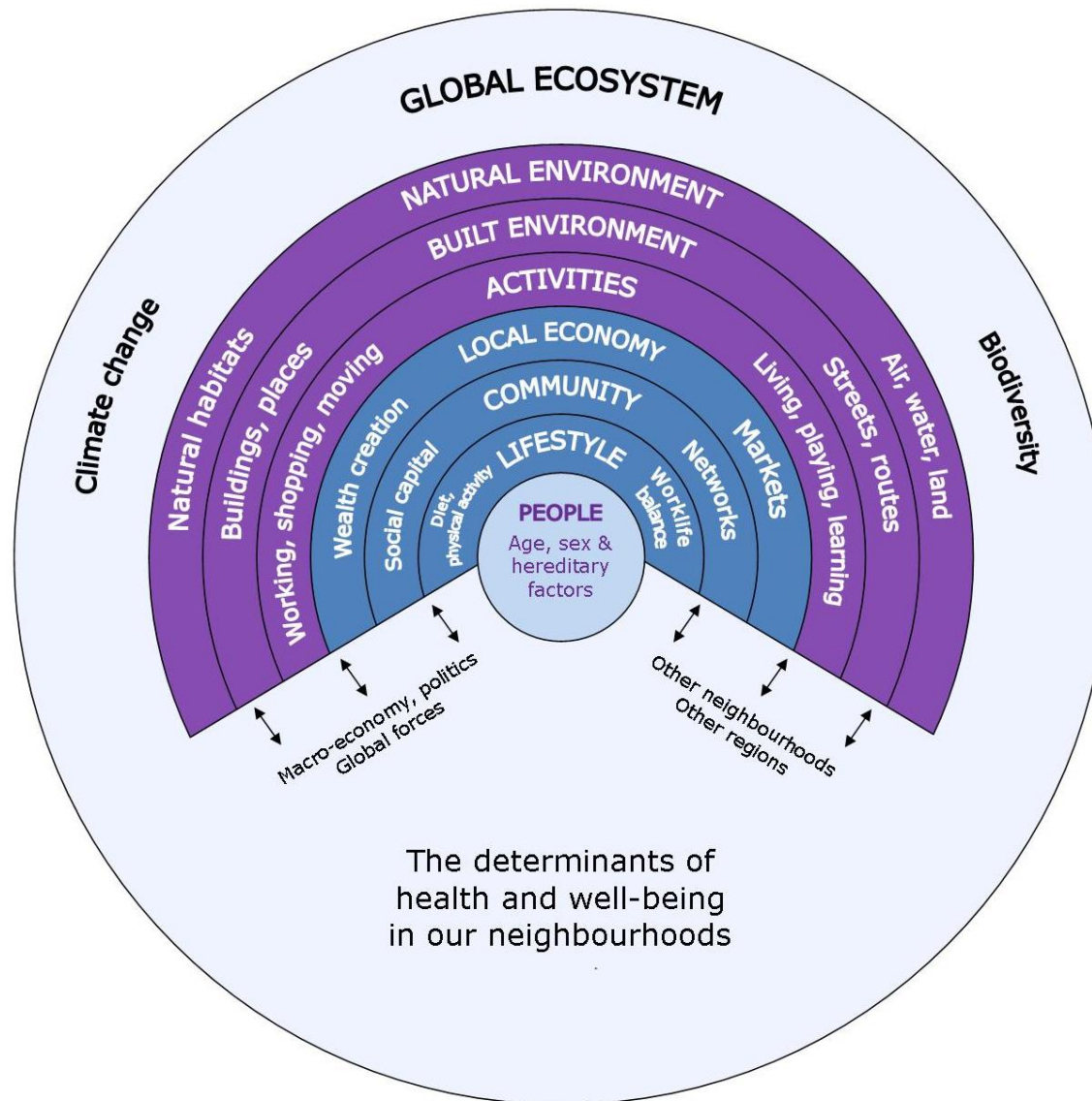
1. Demography
2. Life expectancy
3. Burden of disease
4. Health behaviours
5. Healthy start
- 6. Living conditions**
7. Projections
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Personal, lifestyle and environmental factors influence our health, as well as wider cultural, economic and political forces which also impact on well-being.



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Source: Barton & Grant, 2006

One quarter of children in Wales live in poverty. At small area level this varies considerably from 4% to 64% of children living in poverty.

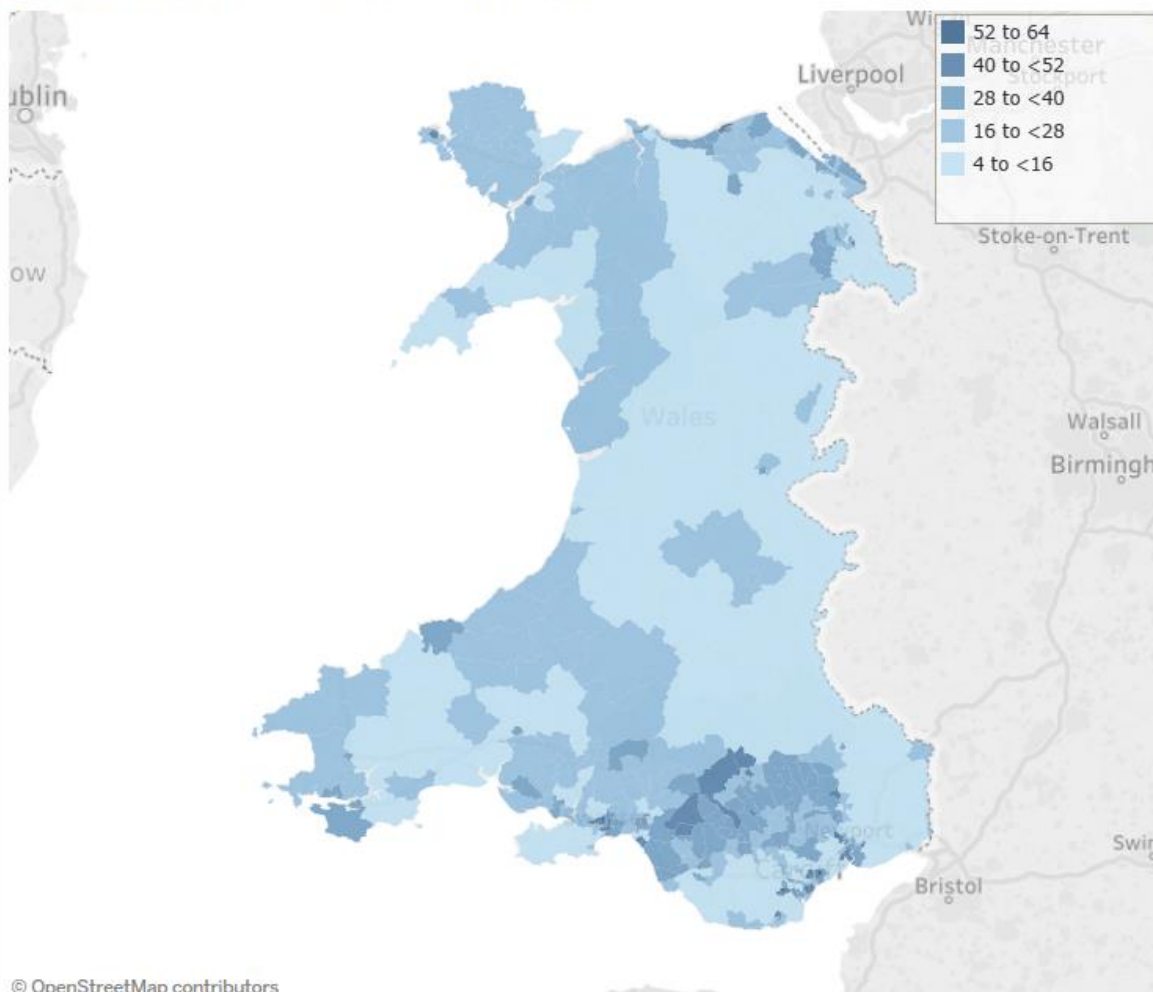


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Children living in poverty, 2016

Percentage, persons aged 0-18, Middle Super Output Areas (MSOAs)



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Produced by Public Health Wales Observatory, using WIMD 2014 (WG) and small area population estimates (ONS).

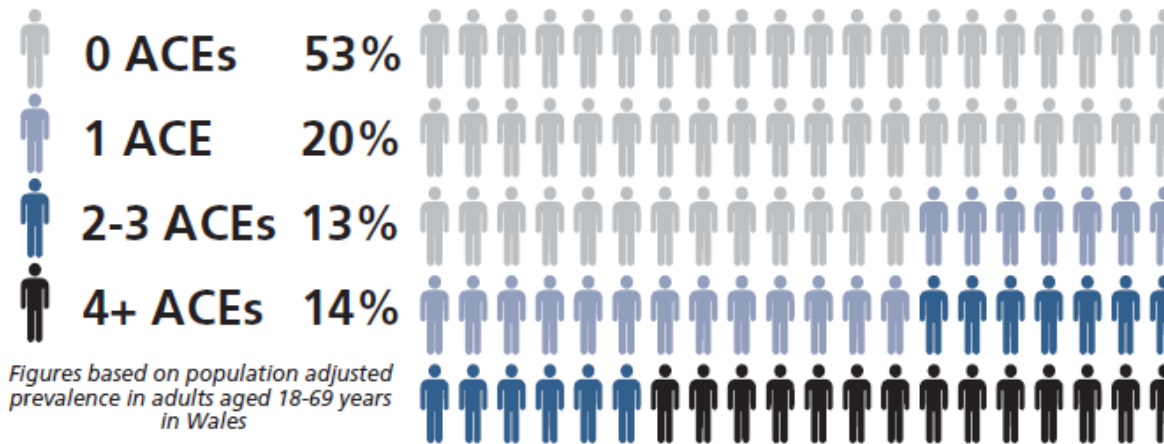
Adverse childhood experiences (ACEs) increase the risk of developing health-harming behaviours; more children in Wales suffered 4+ ACEs compared to England, with similar levels reporting 1+ ACEs.



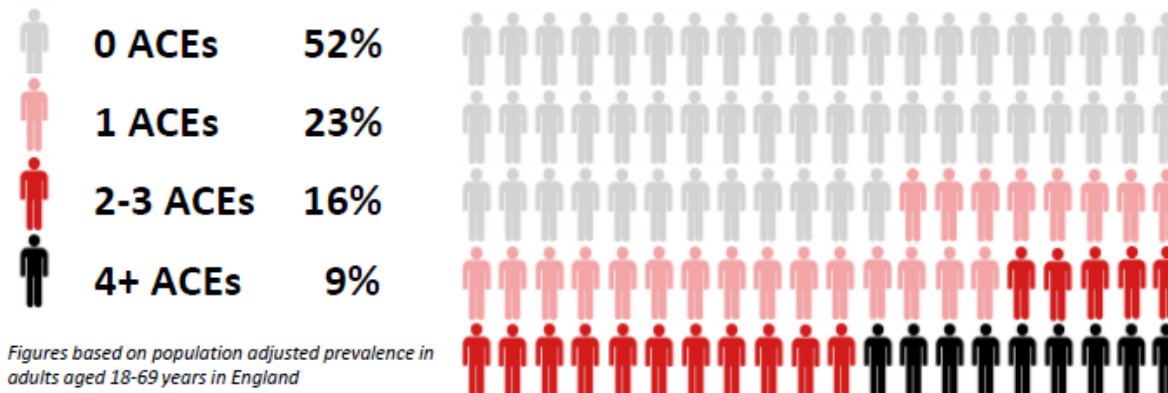
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For every 100 adults in Wales 47 have suffered at least one ACE during their childhood and 14 have suffered 4 or more.



For every 100 adults in England 48 have suffered at least one ACE during their childhood and 9 have suffered 4 or more



Using an internationally comparable measure of educational attainment (PISA), Wales has lower scores than the other UK nations, Sweden and Singapore (the international best).

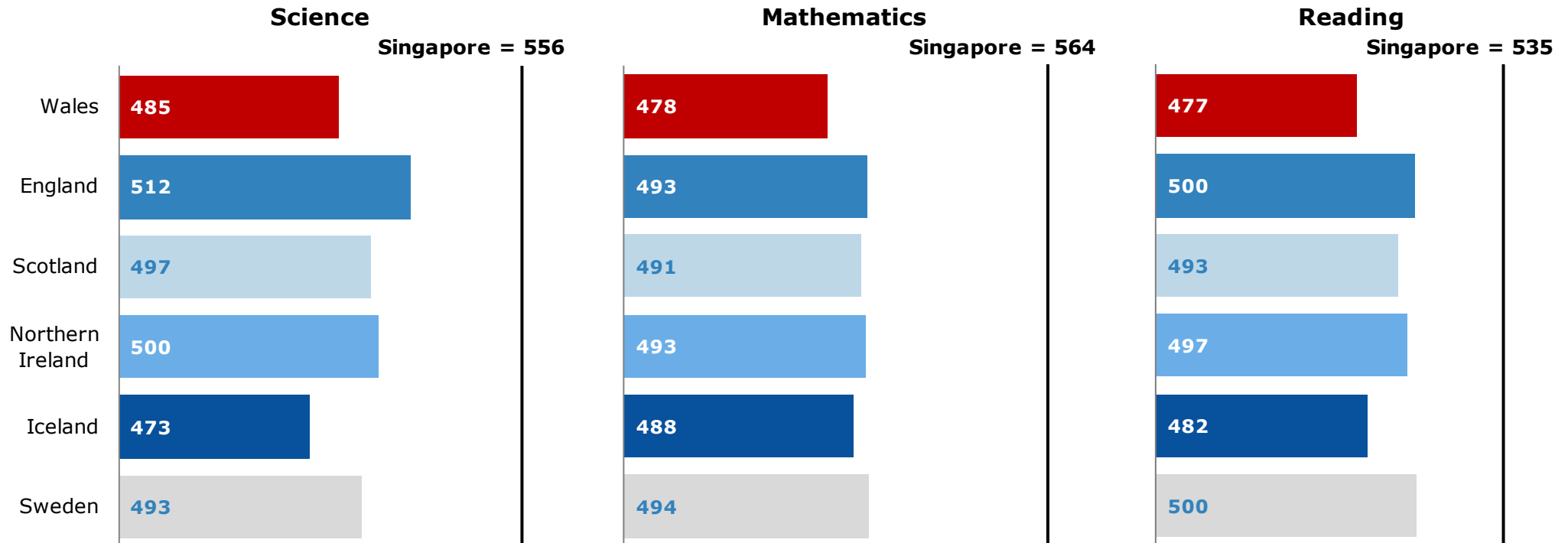


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Mean PISA scores, all persons aged 15, UK nations, Iceland and Sweden, 2015

Produced by Public Health Wales Observatory, using PISA (OECD)



Twice as many people in the least deprived fifth of Wales leave school with level 2 qualifications than in the most deprived fifth of Wales.

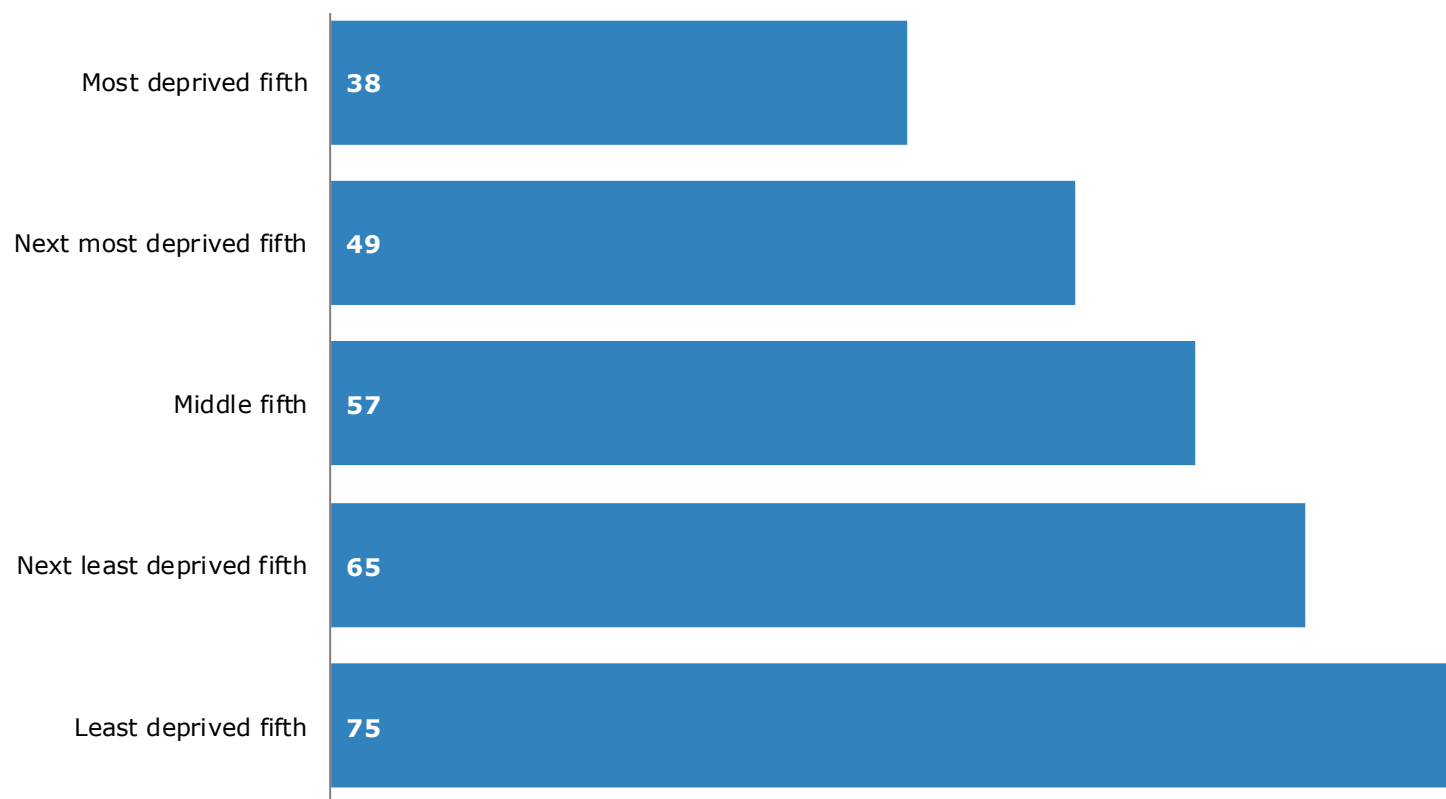


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School leavers with skills & qualifications (level 2), by deprivation fifth, percentage, persons in year 11, Wales, 2016

Produced by Public Health Wales Observatory, using Welsh Examinations Database & WIMD 2014 (WG)



Please note: Level 2 qualifications consists of 5 A*-C GCSEs or equivalents (including English or Welsh First Language and Mathematics).

Around one in five 19-24 year olds and one in ten 16-18 year olds are not in education, employment or training. This has increased slightly in the past 10 years.

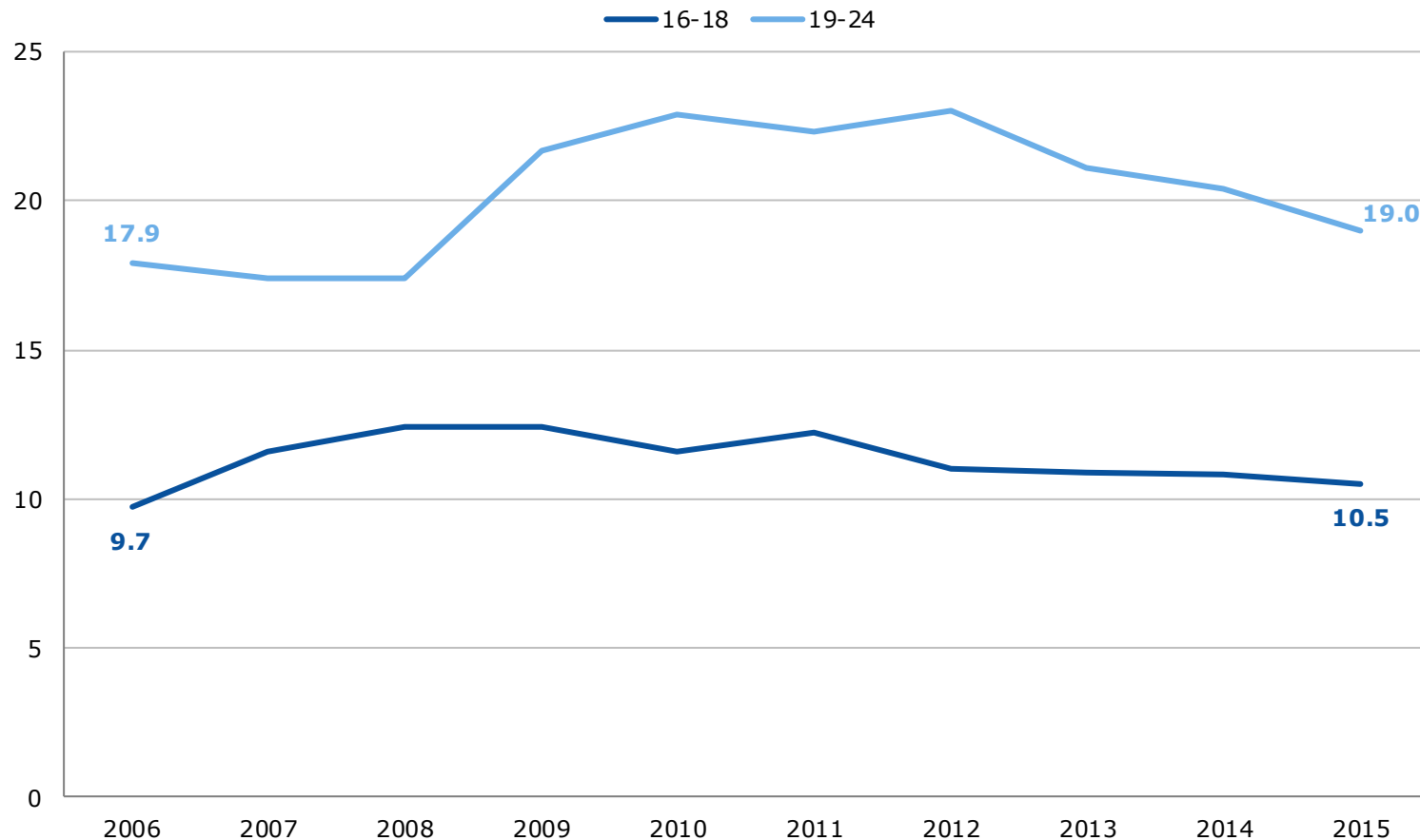


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People not in education, employment or training, percentage, all persons aged 16-24, Wales, 2006-15

Produced by Public Health Wales Observatory, using NEET SFR & APS (ONS)



Over a quarter of households with children living in social rented accommodation are overcrowded. This is substantially higher than both privately rented and owned accommodation.

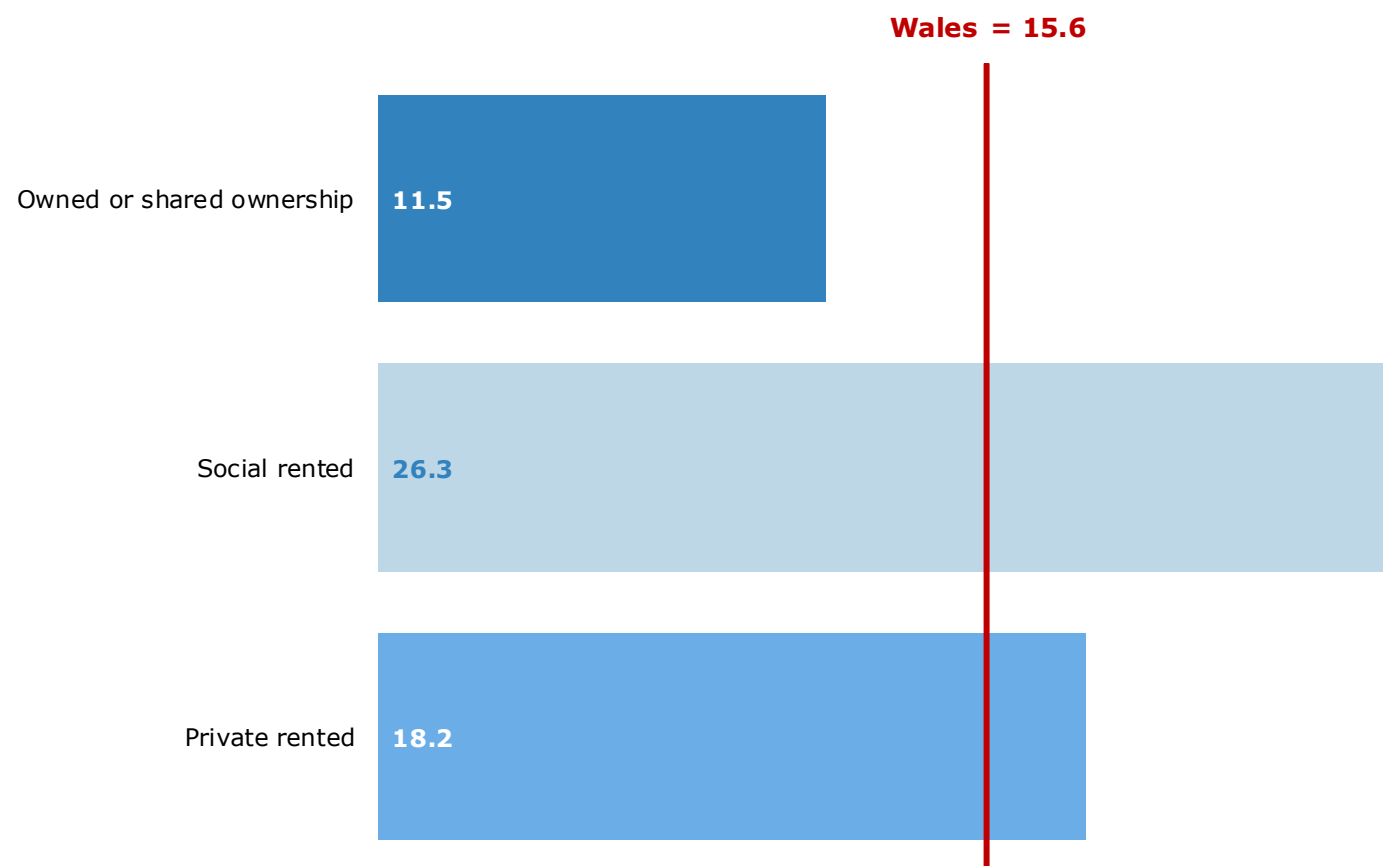


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Percentage of households with dependent children that have more than 1.5 persons per bedroom by tenure, Wales, 2011

Produced by Public Health Wales Observatory, using Census 2011 data table DC4408EW (ONS)



Over 1 in 4 households in the most deprived fifth of Wales report being unable to afford everyday goods; 6% of households in the least deprived areas are also unable afford these.



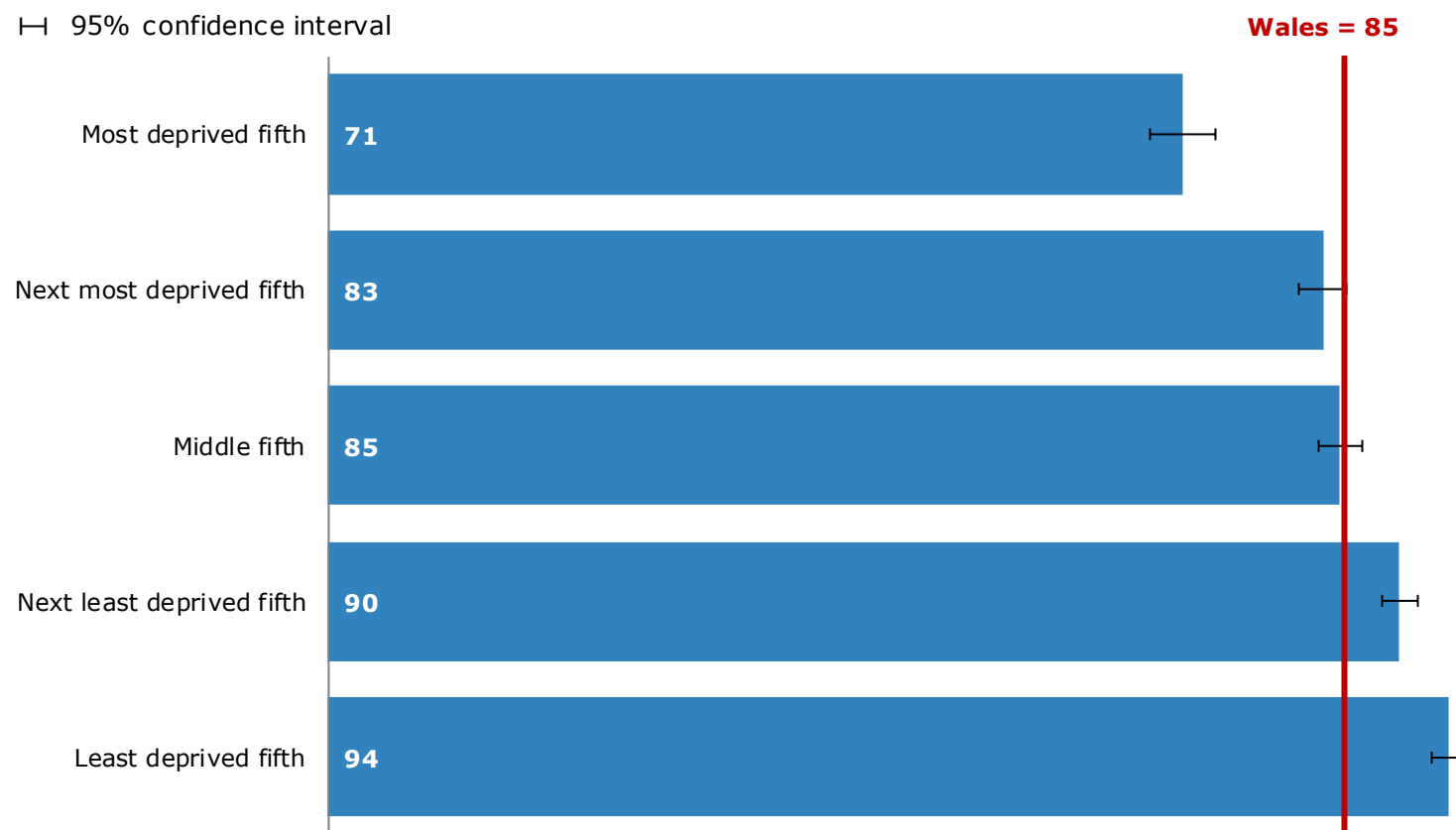
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People able to afford everyday goods and activities by deprivation fifth, percentage, households, Wales, 2016/17

Produced by Public Health Wales Observatory, using NSW & WIMD 2014 (WG)

— 95% confidence interval



82% of pensioners are able to keep up with all bills and commitments without any difficulties. Over 40% of adults aged 16-44 report being unable to do this.

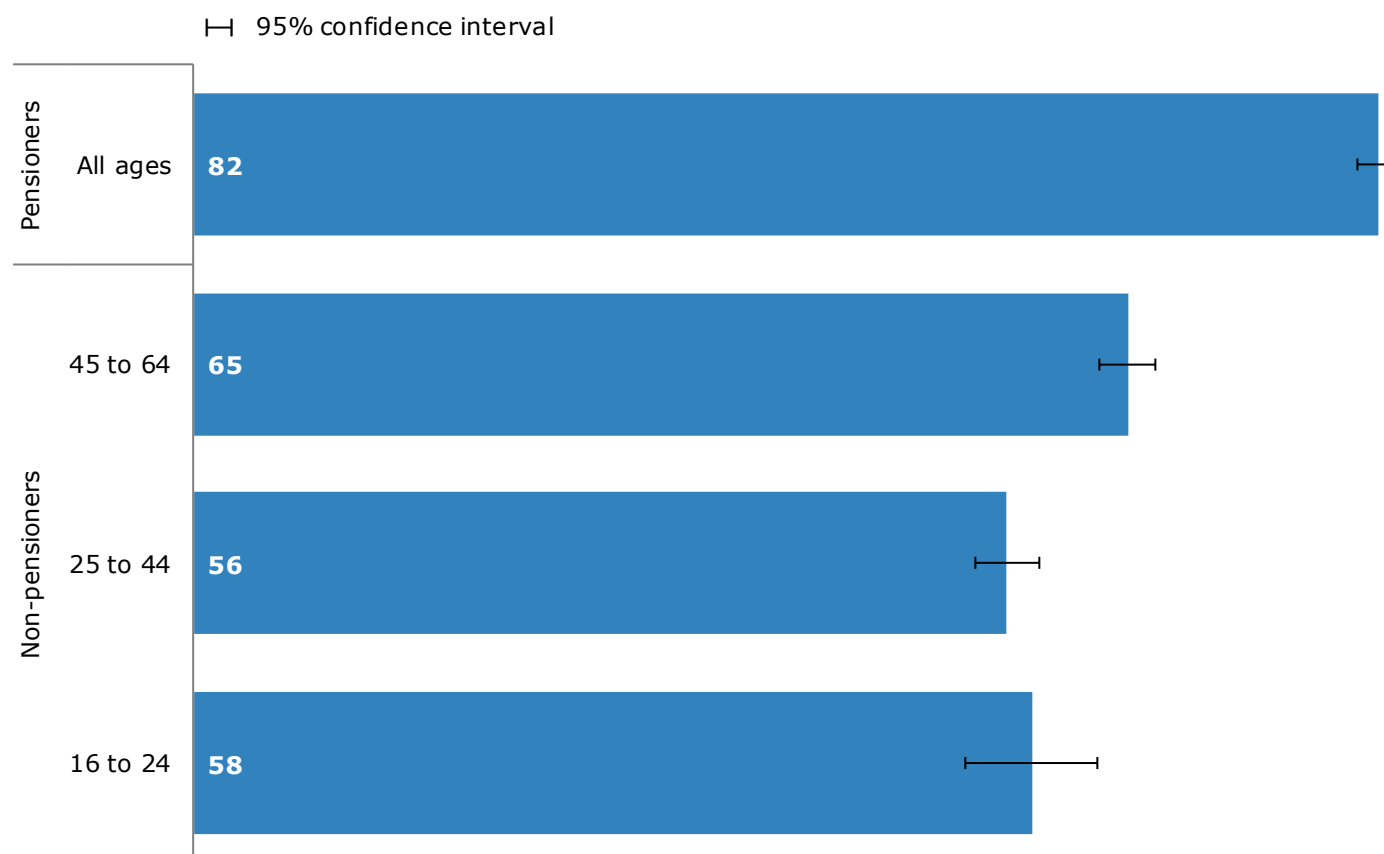


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Ability to keep up with all bills and commitments without any difficulties by age, percentage, all persons aged 16+, Wales, 2016/17

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



42% of parents who had used formal childcare found it difficult to afford, and 35% of parents found it difficult to get childcare during the school holidays.

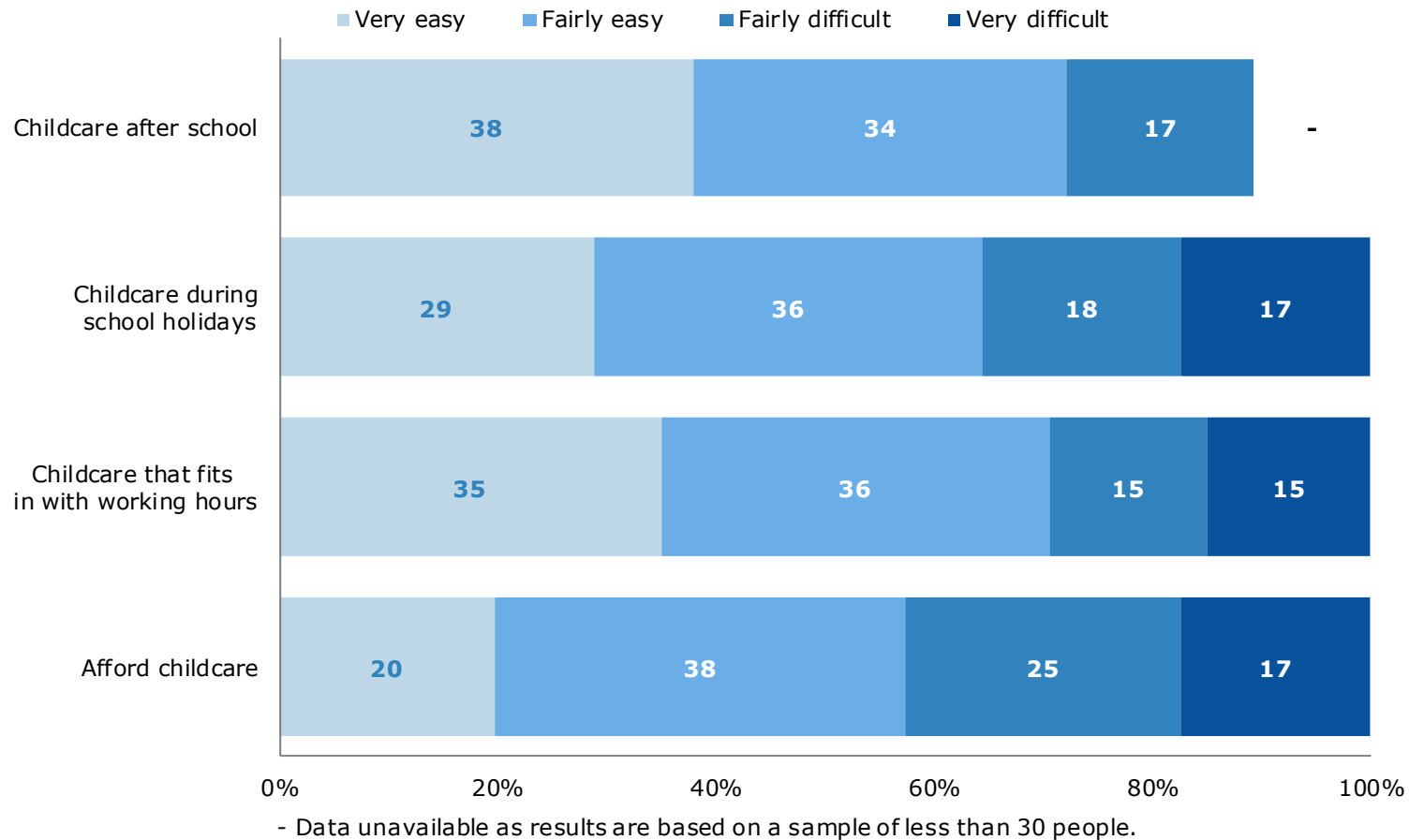


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How easy or difficult was it to get childcare for children aged 0 to 14 years, percentages, Wales, 2016/17

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



12% of the total population in Wales are providing unpaid care. This rises to 22% for persons aged 50-64.

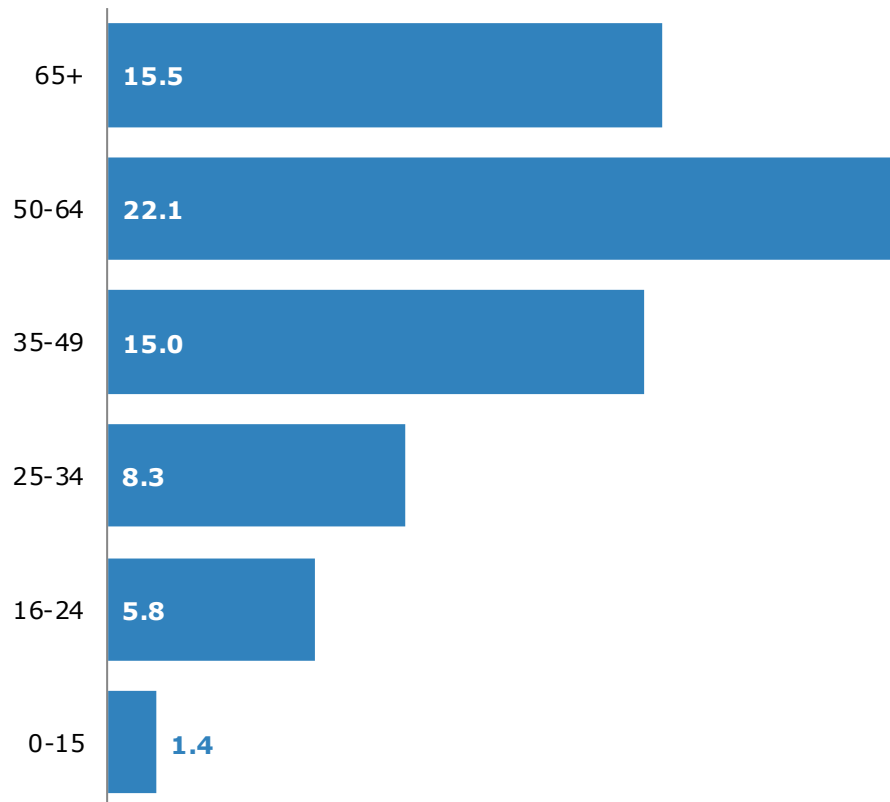


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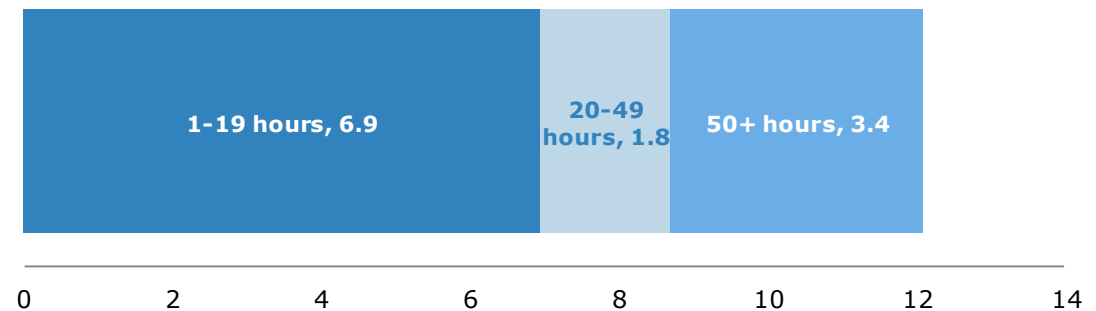
Provision of unpaid care by age group, all persons, all ages, Wales, percentage, 2011

Produced by Public Health Wales Observatory, using Census 2011 data table LC3304EW (ONS)



Provision of unpaid care by hours worked, all persons, all ages, Wales, percentage, 2011

Produced by Public Health Wales Observatory, using Census 2011 data table LC3304EW (ONS)



Around one in four adults living in the most deprived fifth of Wales reported feeling lonely, double the number of those in the least deprived fifth of Wales.



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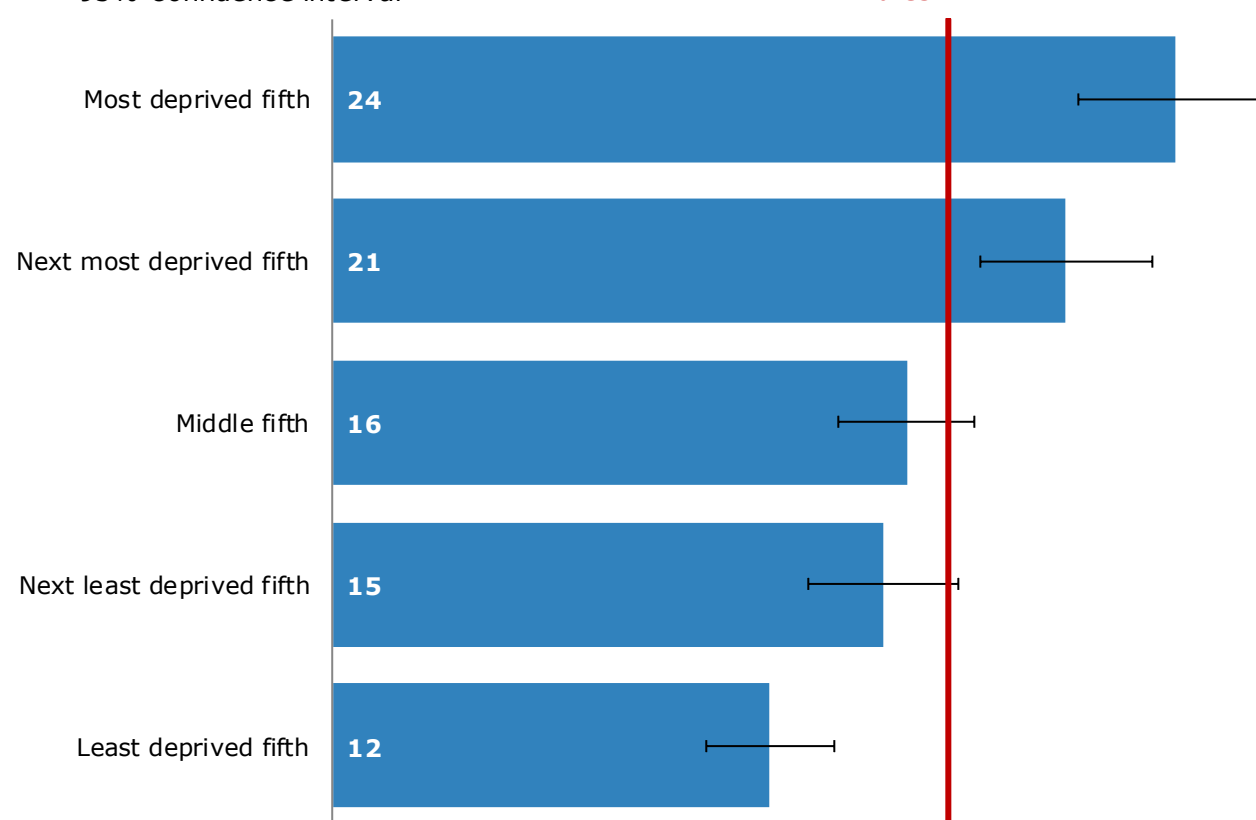
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People feeling lonely by deprivation fifth, percentage, Wales, 2016/17

Produced by Public Health Wales Observatory, using NSW and WIMD 2014 (WG)

— 95% confidence interval

Wales = 17



The percentage of people reporting a sense of community is lower in the most deprived fifth of Wales compared to the least deprived of Wales.



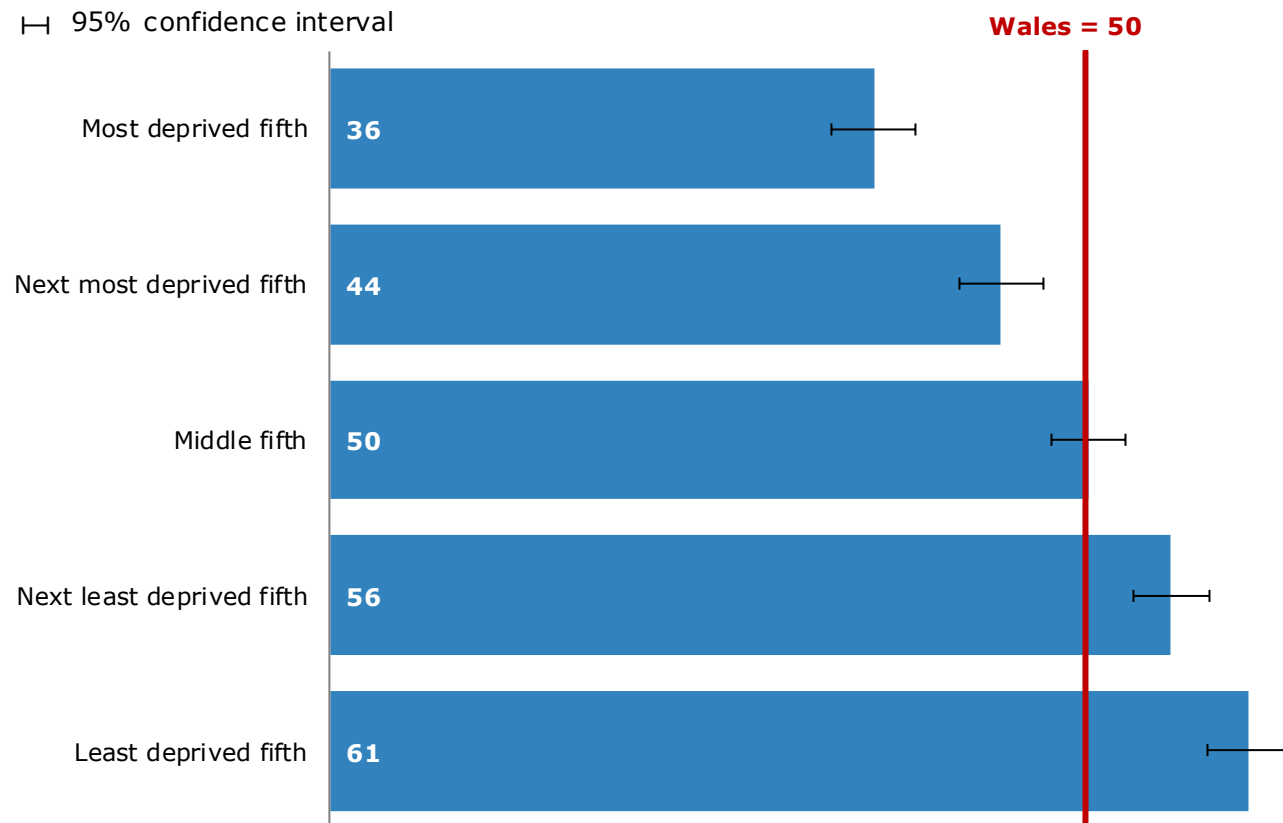
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A sense of community by deprivation fifth, percentage, all persons aged 16+, Wales, 2016/17

Produced by Public Health Wales Observatory, using NSW & WIMD 2014 (WG)

— 95% confidence interval



Average nitrogen dioxide air pollution and PM₁₀ concentrations in Wales showed some improvement between 2007 and 2015. PM_{2.5} concentrations have remained static in this time period.

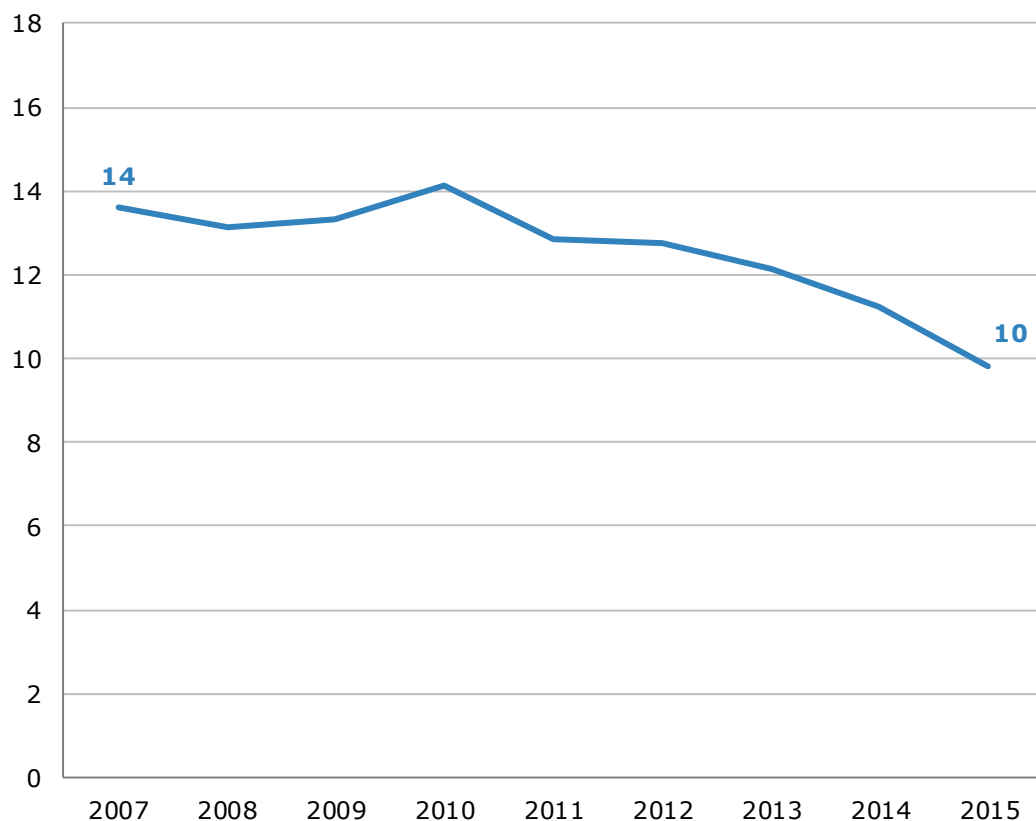


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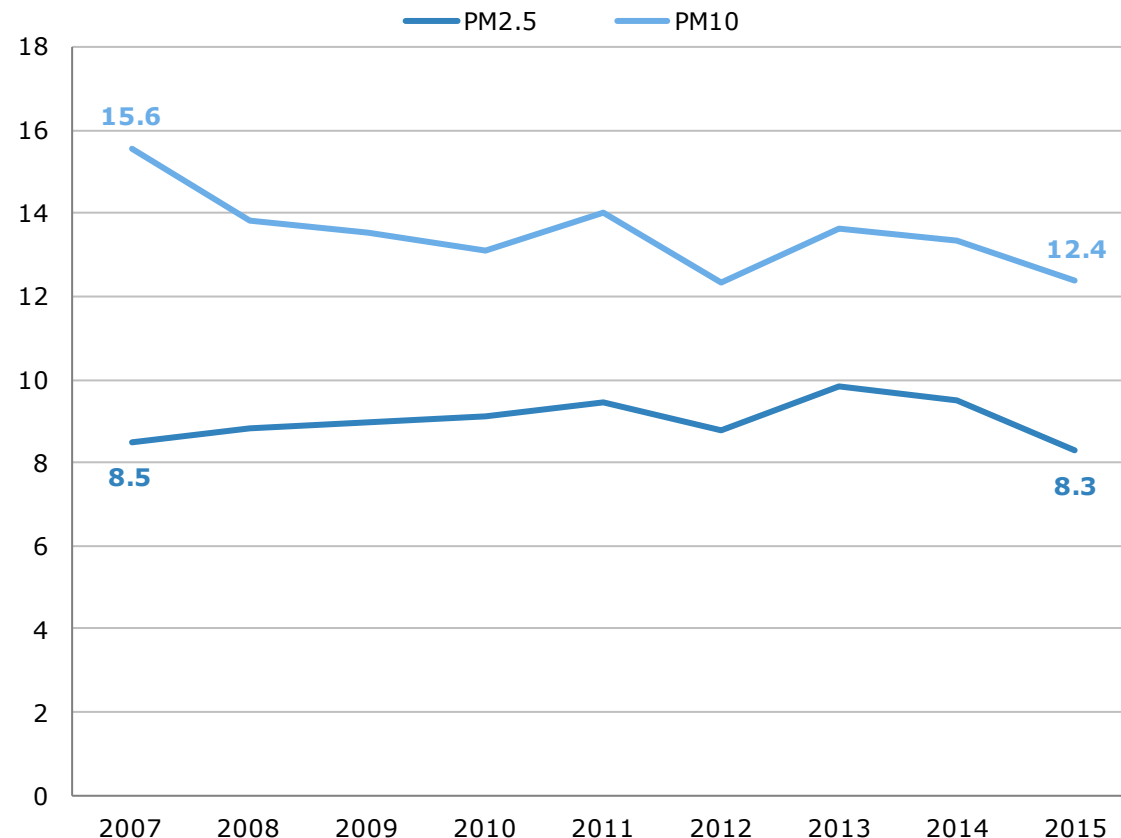
Average nitrogen dioxide (NO₂) concentration at residential dwelling locations (µg/m³), Wales, 2007-2015

Produced by Public Health Wales Observatory, using modelled air quality data (DEFRA), MYE & dwelling counts (ONS)



PM_{2.5} & PM₁₀ concentrations (µg/m³), annual average, Wales, 2007-15

Produced by Public Health Wales Observatory, using modelled air quality data (DEFRA), small area population estimates (ONS)



Please note: Air quality varies with geographical area, for example between urban and rural areas. Area specific trends in air pollution may not be possible to discern when using the Wales average.

1. Demography
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Based on past trends, and assuming unchanged cessation activity, smoking rates are projected to continue to decline across all age groups in Wales.

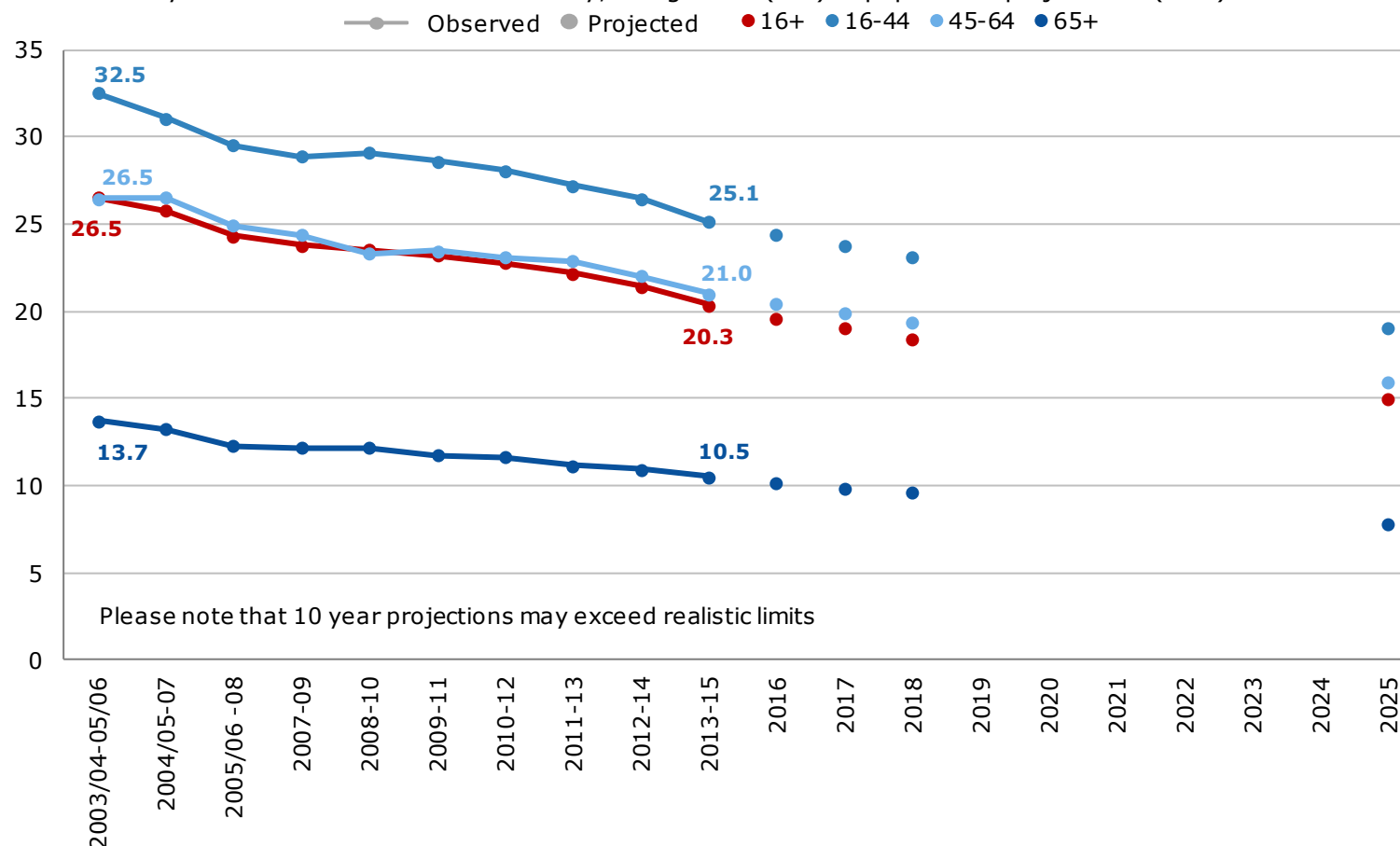


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Estimated percentage of adults who reported to be current smokers, all persons aged 16+, Wales, observed 2003/04-2005/06 to 2013-15 and projected 2016 to 2025

Produced by Public Health Wales Observatory, using WHS (WG) & population projections (ONS)



Please note: An extrapolated projection method uses historical trends and cycles to extrapolate to the future. The extrapolation method assumes that past patterns will continue into the future. While this is often a valid assumption in the short term, the further we attempt to forecast, the less certain we become of the forecast.

If the current smoking uptake and quit rates for Wales do not change the national target will not be met. Smoking will continue to be an important public health issue for many years to come.



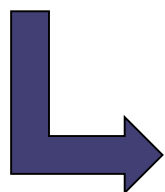
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Constant quit rate of 2.5%

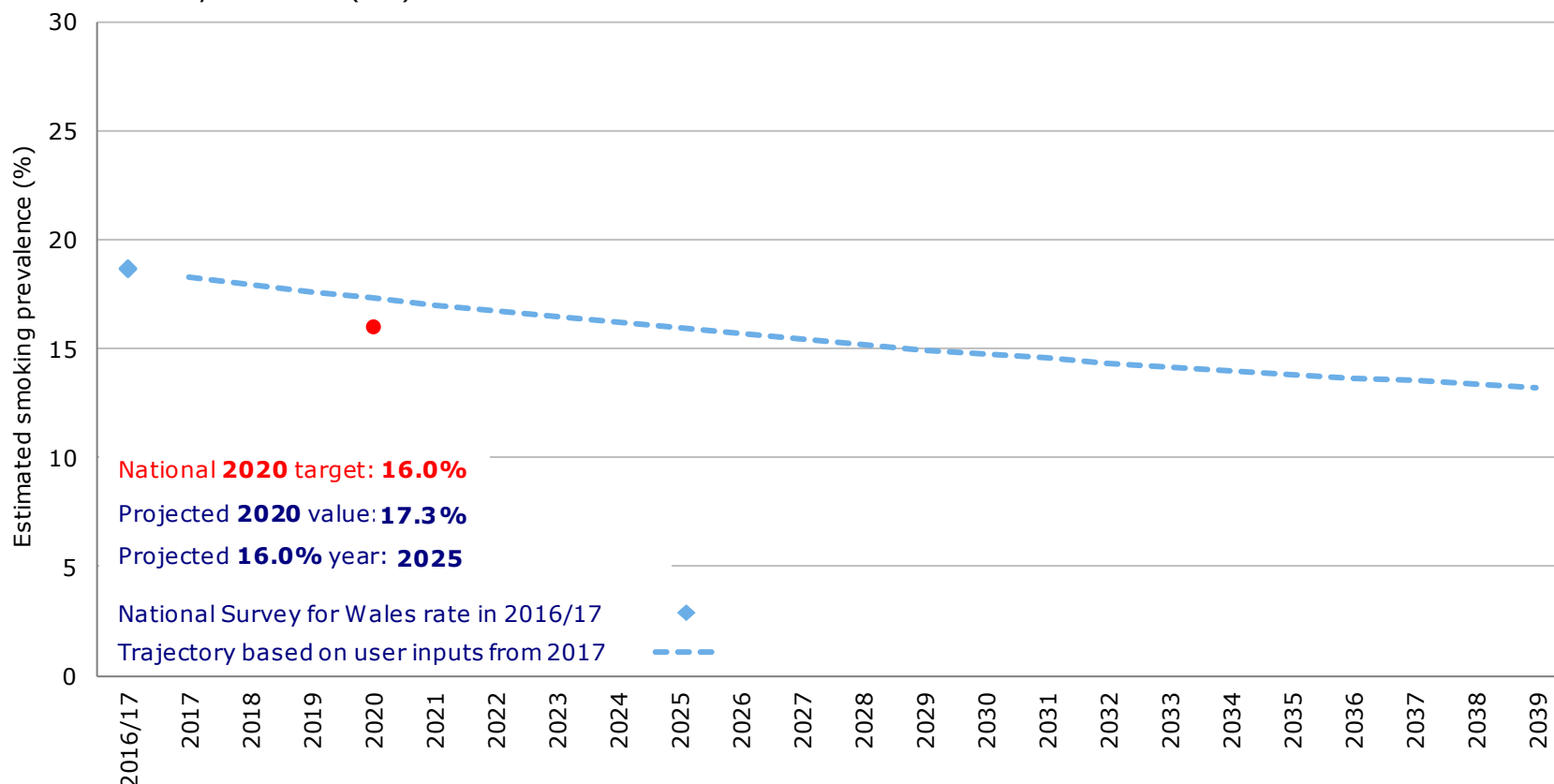
8.5% of 15 year olds are already smoking

0.2% of 16+ year olds start to smoke each year



Estimated smoking prevalence projection, all persons aged 16+, Wales, 2016/17 to 2039

Produced by Public Health Wales Observatory, using mid-year estimates & population projections (ONS), HBSC survey & National Survey for Wales (WG)



Please note: The projections of smoking prevalence are estimates. They are based on the smoking point prevalence for 2016/17 and various assumptions which may or may not hold true in the future.

Increasing the number of people quitting alone will not eradicate smoking, preventing uptake is an important consideration in reducing smoking.



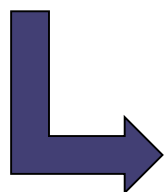
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↑ Increasing quit rates
by 1.0% each year
(max quit rate 6.0%)

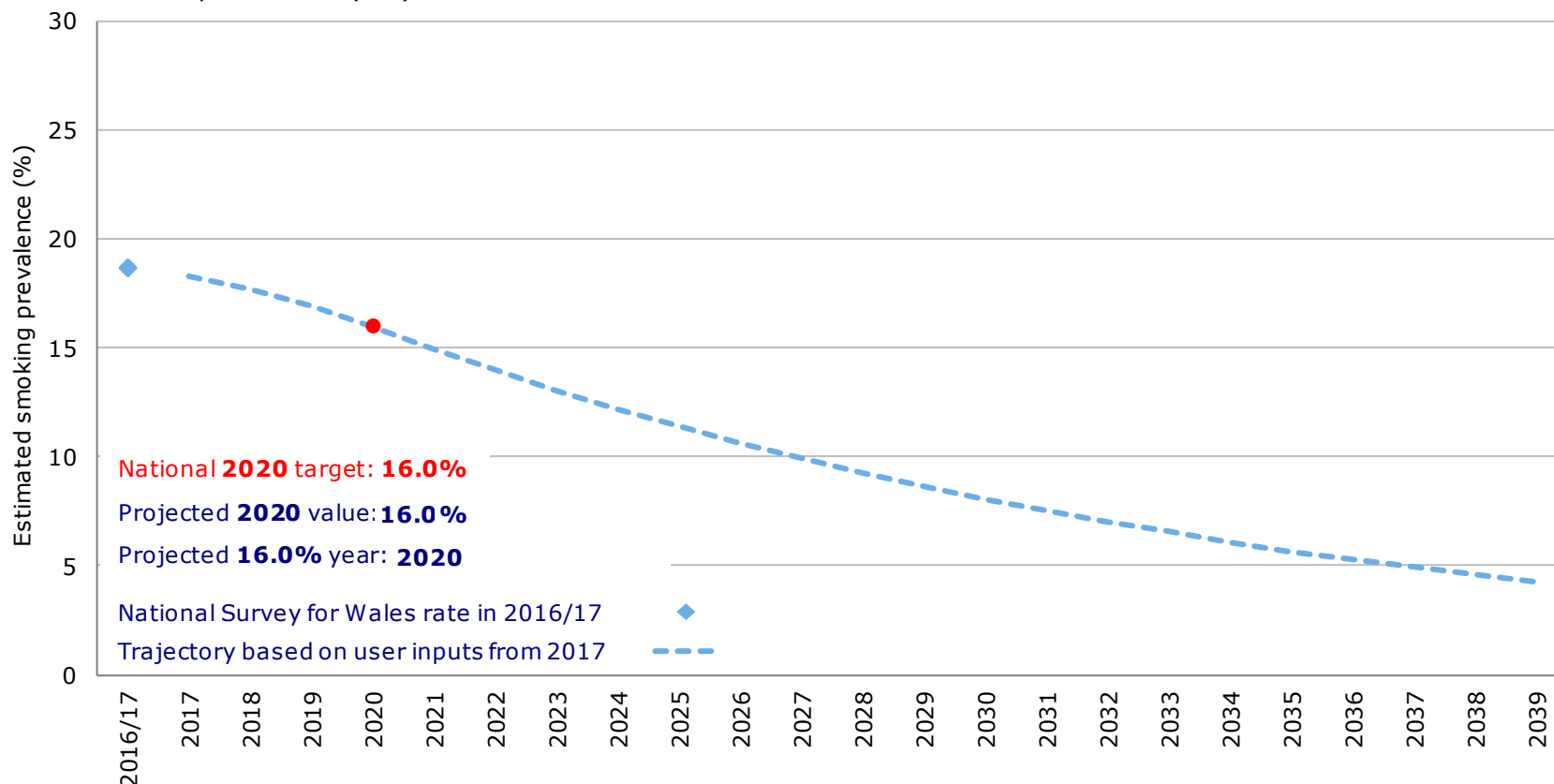
↓ Reducing the rate of
15 year olds already
smoking by 0.5%
each year

↓ Reducing 16+ year
olds starting to
smoke by 0.05%
each year



Estimated smoking prevalence projection, all persons aged 16+, Wales, 2016/17 to 2039

Produced by Public Health Wales Observatory, using mid-year estimates & population projections (ONS), HBSC survey & National Survey for Wales (WG)



Please note: The projections of smoking prevalence are estimates. They are based on the smoking point prevalence for 2016/17 and various assumptions which may or may not hold true in the future.

Based on past trends, obesity and insufficient fruit and vegetable consumption are projected to increase.

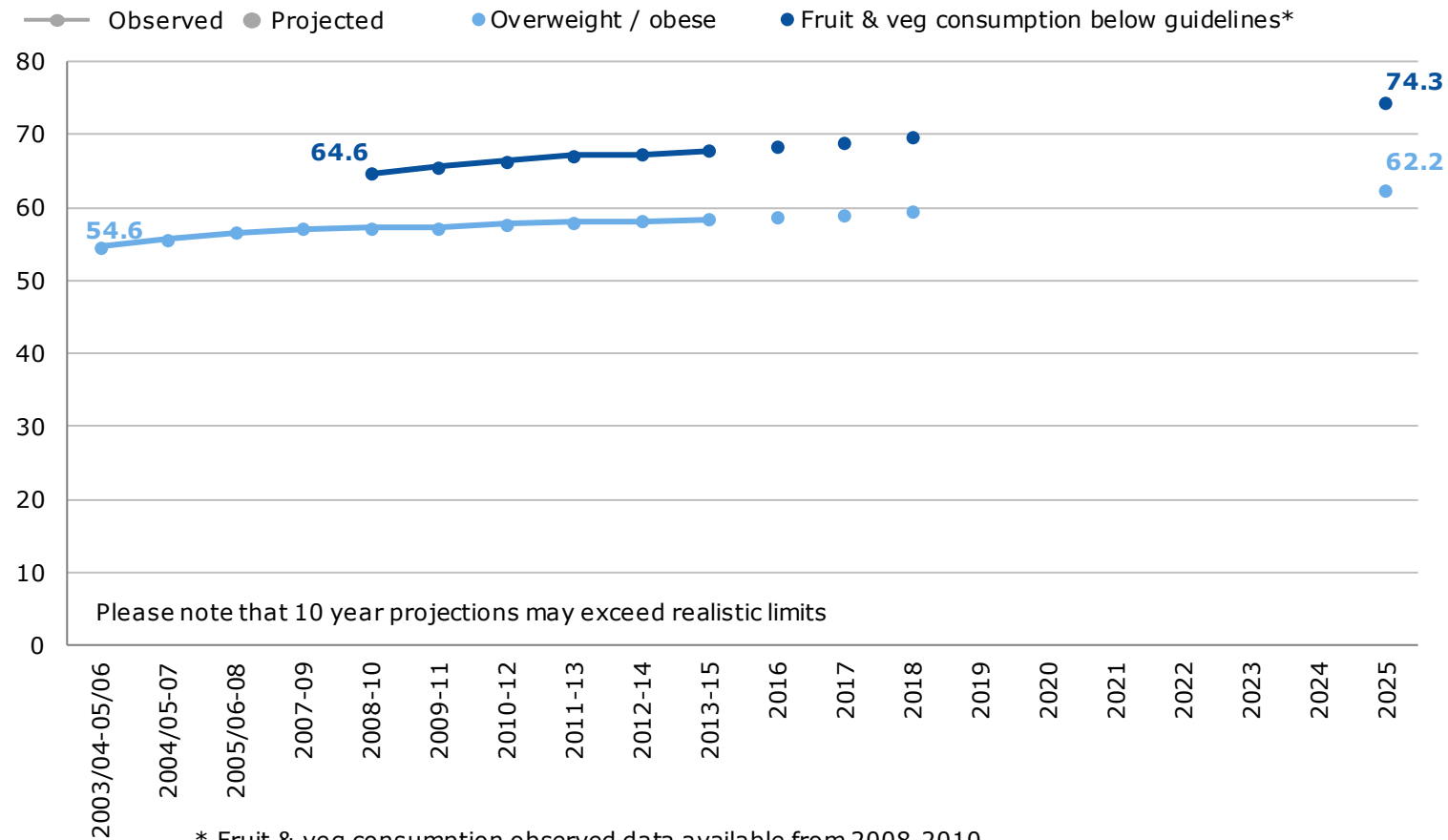


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Estimated percentage of adults who reported selected lifestyle factors, persons aged 16+, Wales, observed 2003/04-2015 and projected 2016-2025

Produced by Public Health Wales Observatory, using WHS (WG) & population projections (ONS)



Please note: An extrapolated projection method uses historical trends and cycles to extrapolate to the future. The extrapolation method assumes that past patterns will continue into the future. While this is often a valid assumption in the short term, the further we attempt to forecast, the less certain we become of the forecast.

Living longer will impact on the number of people living with age-related conditions and result in increased demand for health care services.

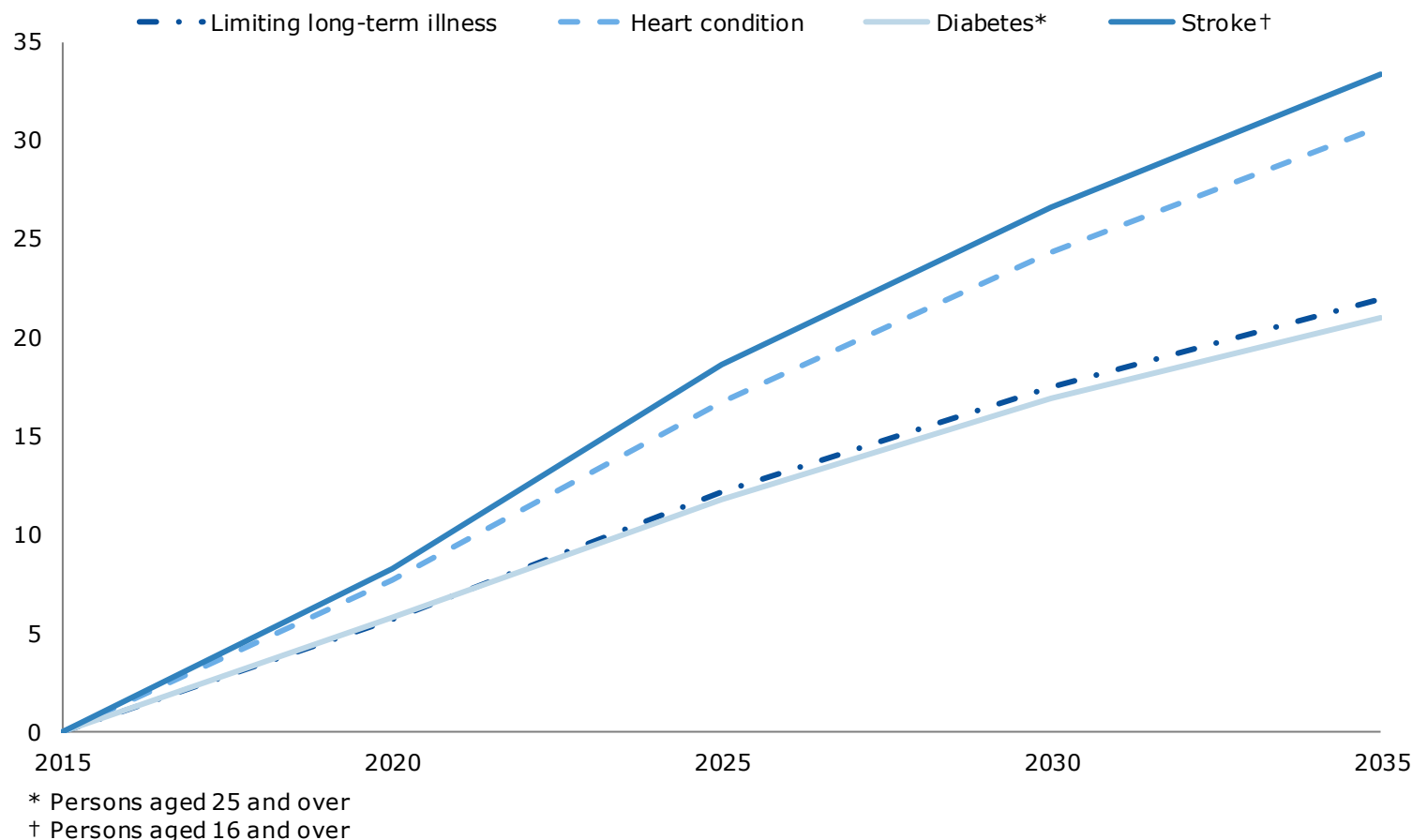


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Persons predicted to have selected health conditions, percentage change since 2015, all persons aged 18+, Wales, 2015-2035

Produced by Public Health Wales Observatory, using Daffodil (Institute of Public Care)



Please note: The projected prevalence changes of the Daffodil projections do not take account of any existing temporal trends in prevalence, such as the decline in cardiovascular disease or rise in diabetes prevalence. They represent the effects of anticipated population demographics only on prevalence at a point in time.

As the population of Wales live longer, chronic conditions such as heart disease are predicted to rise and the likelihood of additional illnesses will also increase with age.

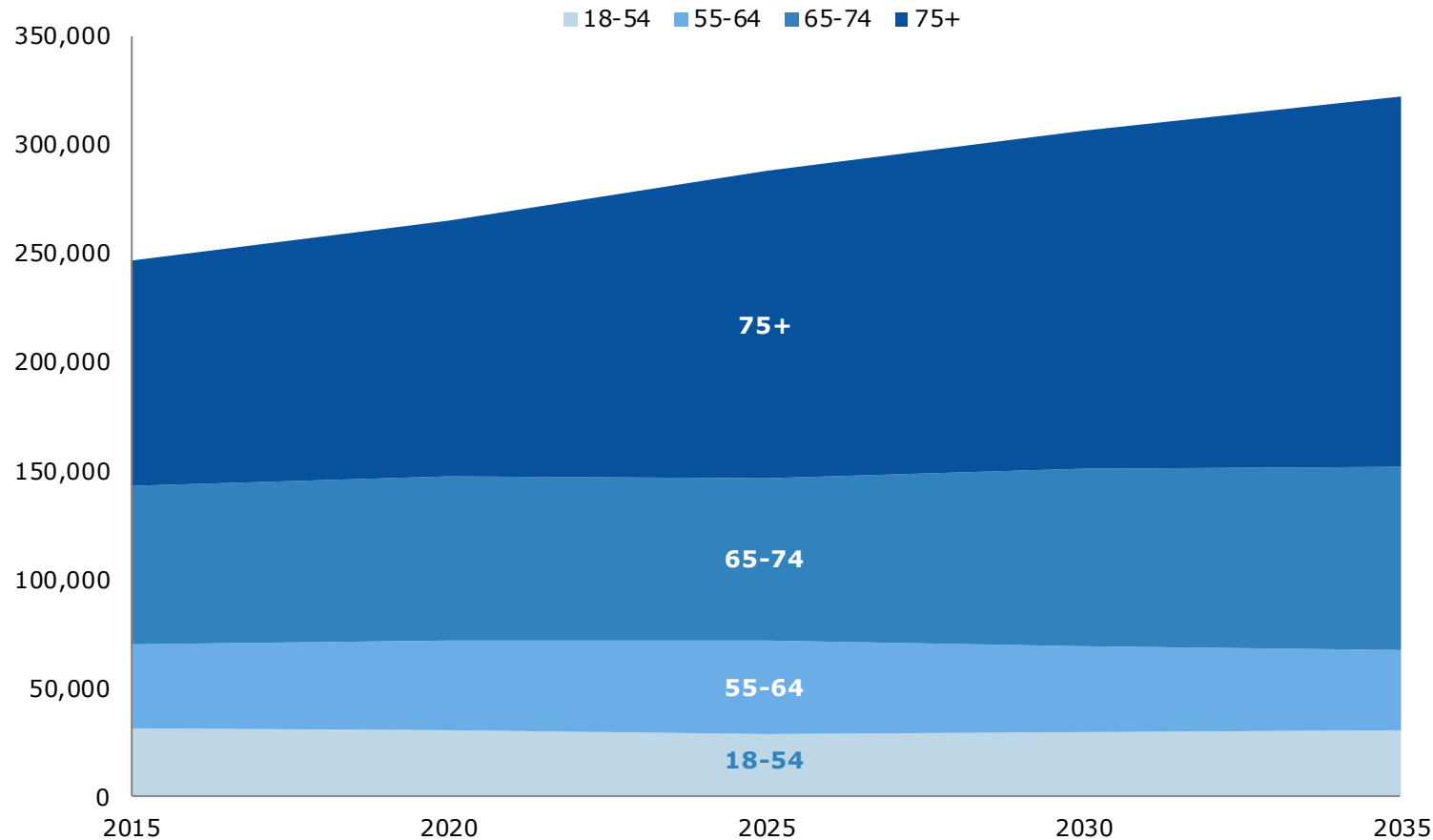


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Persons predicted to have any heart condition (excluding high blood pressure) by age, counts, all persons aged 18+, Wales, 2015-2035

Produced by Public Health Wales Observatory, using Daffodil (Institute of Public Care)

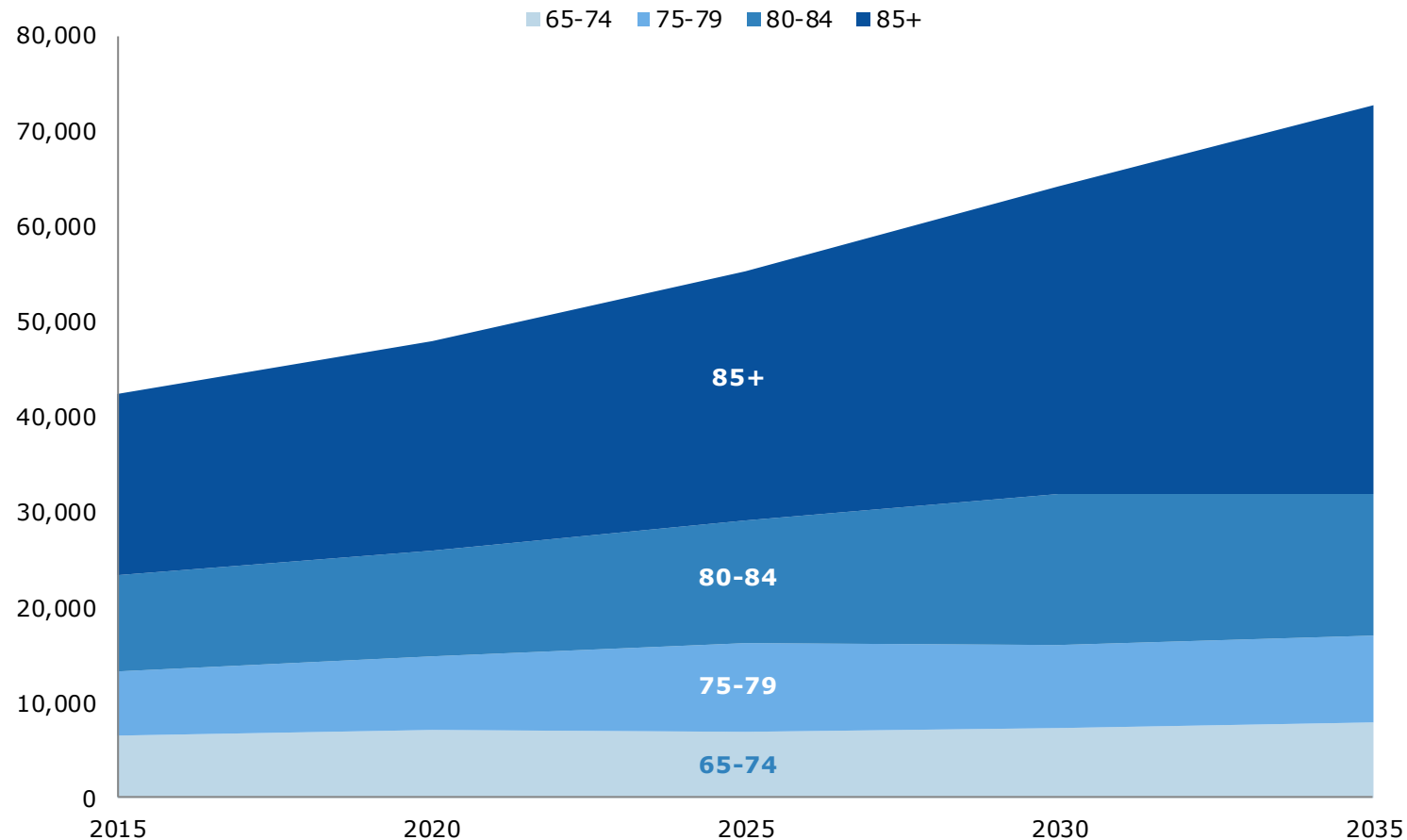


Please note: The projected prevalence changes of the Daffodil projections do not take account of any existing temporal trends in prevalence, such as the decline in cardiovascular disease. They represent the effects of anticipated population demographics only on prevalence at a point in time.

Increases in the ageing population of Wales will result in increasing numbers of age related conditions such as dementia.

Persons predicted to have dementia by age group, counts, all persons aged 65+, Wales, projected to 2035

Produced by Public Health Wales Observatory, using Daffodil (Institute of Public Care)



Please note: The projected prevalence changes of the Daffodil projections do not take account of any existing temporal trends in prevalence. They represent the effects of anticipated population demographics only on prevalence at a point in time.

1. Demography
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There is growing disparity in wealth in many Western nations.

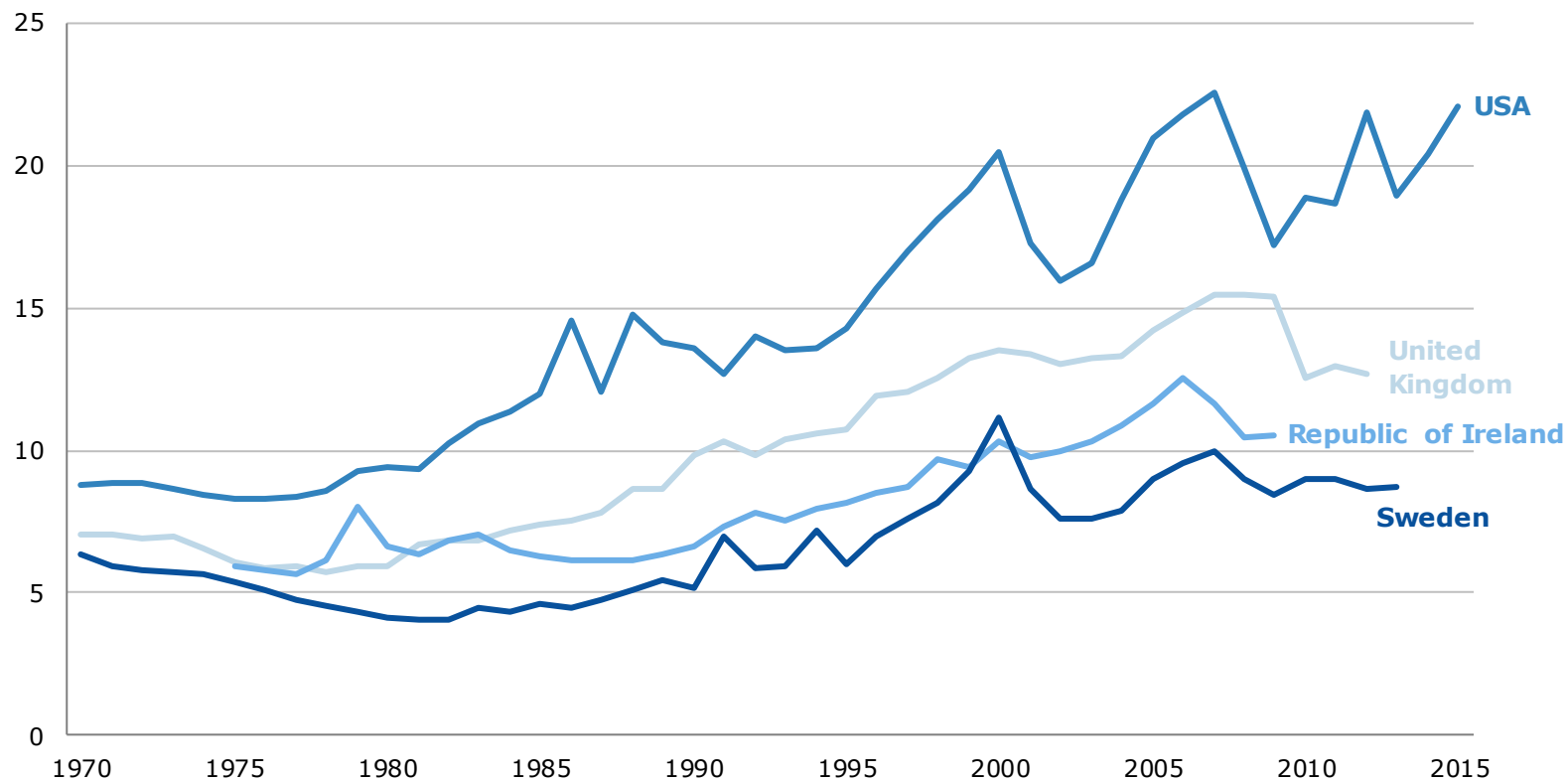


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Income share of the top 1%, UK, Republic of Ireland, USA and Sweden, percentage, 1970-2015*

Produced by Public Health Wales Observatory, using World Wealth and Income Database



* data not available across the whole period for some countries

Current global policy projects an increase in yearly global greenhouse emissions.

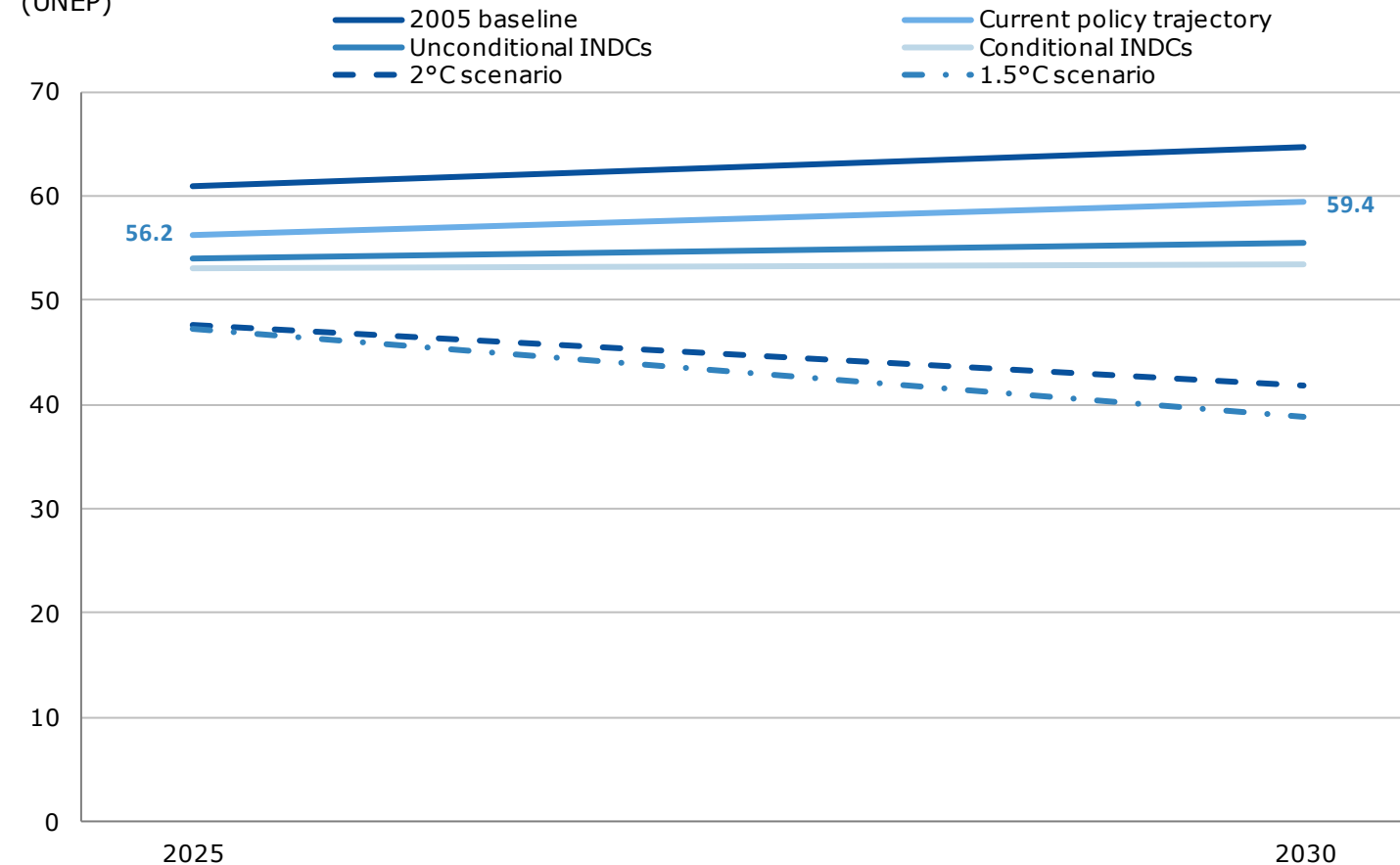


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Projected Global Greenhouse gas Emissions, GtCO₂e per year, 2025 and 2030

Produced by Public Health Wales Observatory, using data from United Nations Environmental Programme (UNEP)



Notes:

- 2005 baseline assumes no policy changes from 2005

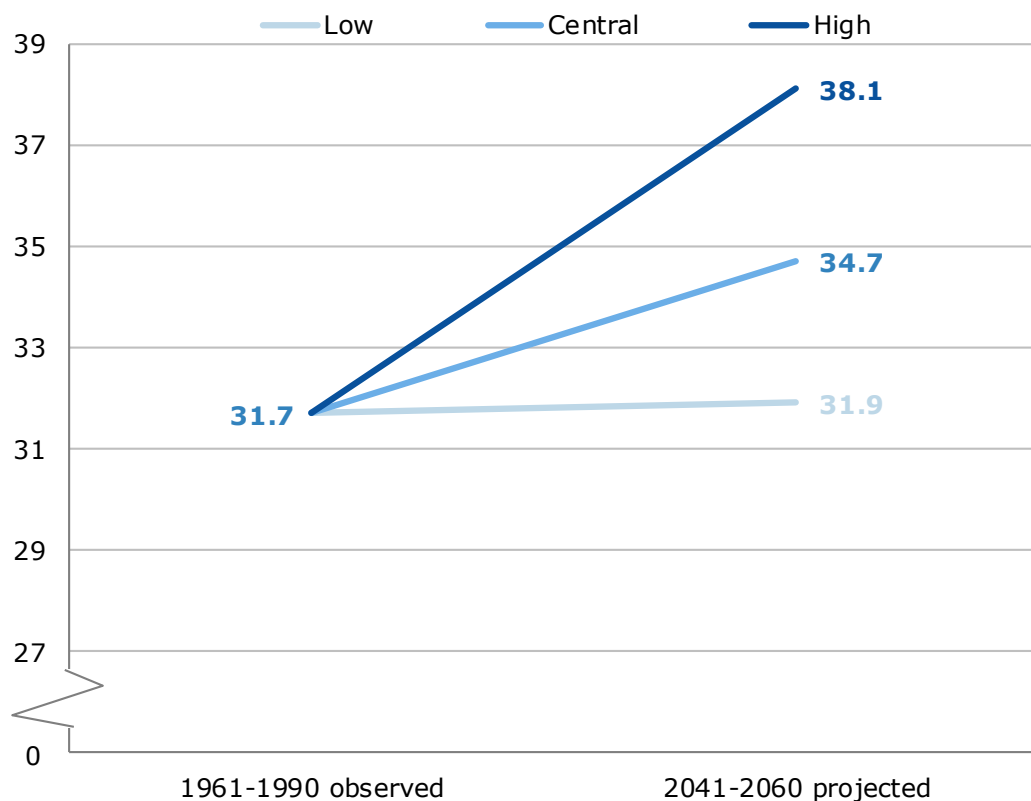
- Conditional and unconditional Intended Nationally Determined Contributions (INDC) scenarios represent the differing level of commitments made in Paris that could be implemented

- 1.5°C and 2°C scenarios represent the least expensive paths with a greater than 50% likelihood of limiting warming below the scenario level.

The climate is projected to change with increases in summer temperatures and winter rainfall, this will have implications for health.

Projected daily summer maximum surface temperature (°C) in Cardiff, 1961-1990 observed and 2041-2060 projected

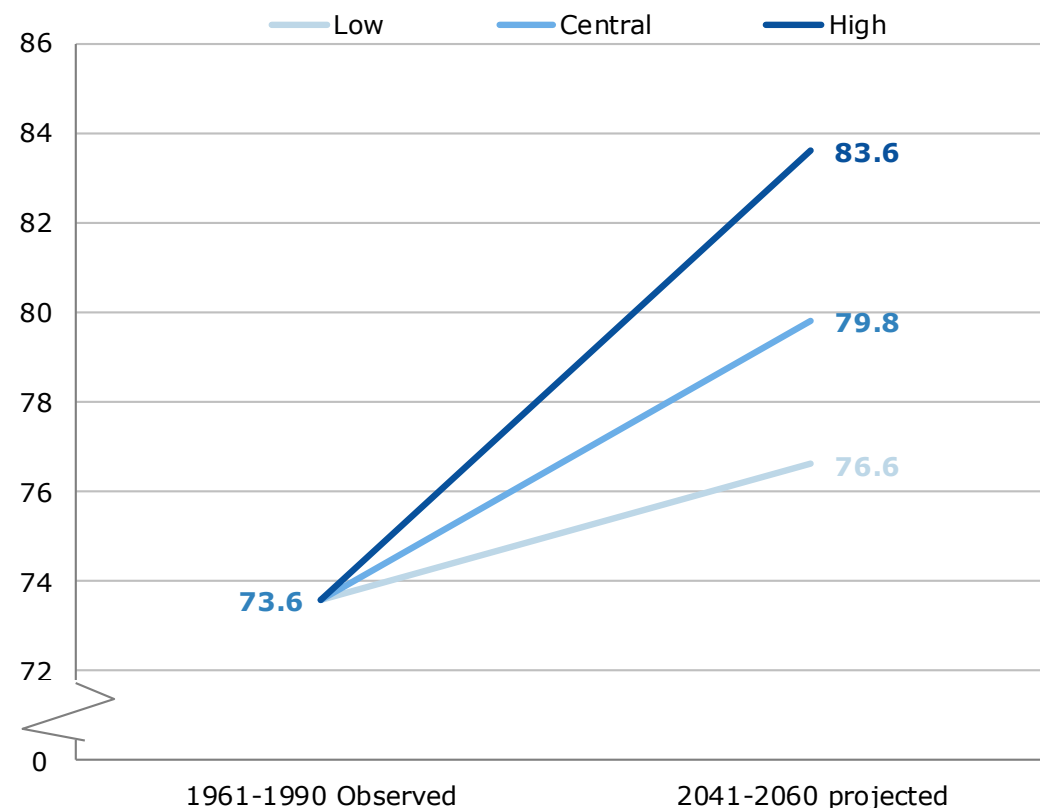
Produced by Public Health Wales Observatory, using data from Brown et al. (2014), CCRA2 Evidence Report, via ASC (2016) UK Climate Change Risk Assessment 2017 Evidence Report – Summary for Wales.



Please note: Axes do not start at 0. Data is only available for Cardiff and caution must be used in generalising these projections to the whole of Wales.

Projected 5-day cumulative winter rainfall accumulation (mm) in Cardiff, 1961-1990 observed and 2041-2060 projected

Produced by Public Health Wales Observatory, using data from Brown et al. (2014), CCRA2 Evidence Report, via ASC (2016) UK Climate Change Risk Assessment 2017 Evidence Report – Summary for Wales.



The projected health implications of a changing climate are likely to affect the most vulnerable groups such as older people.

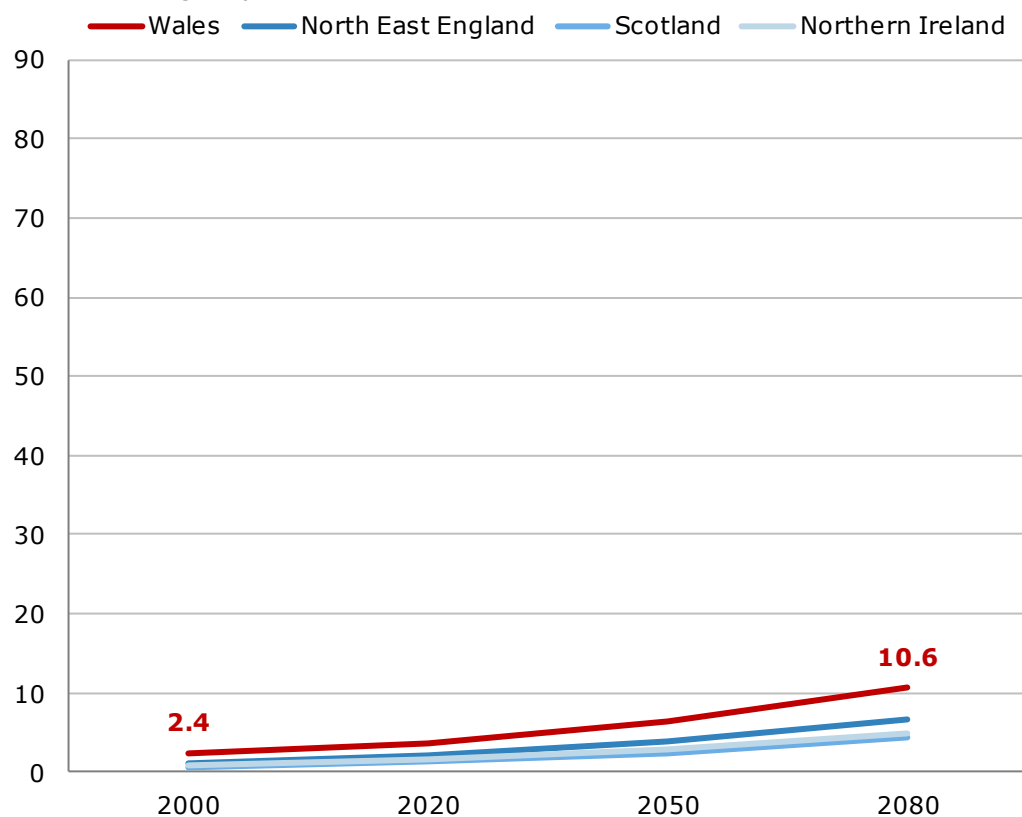


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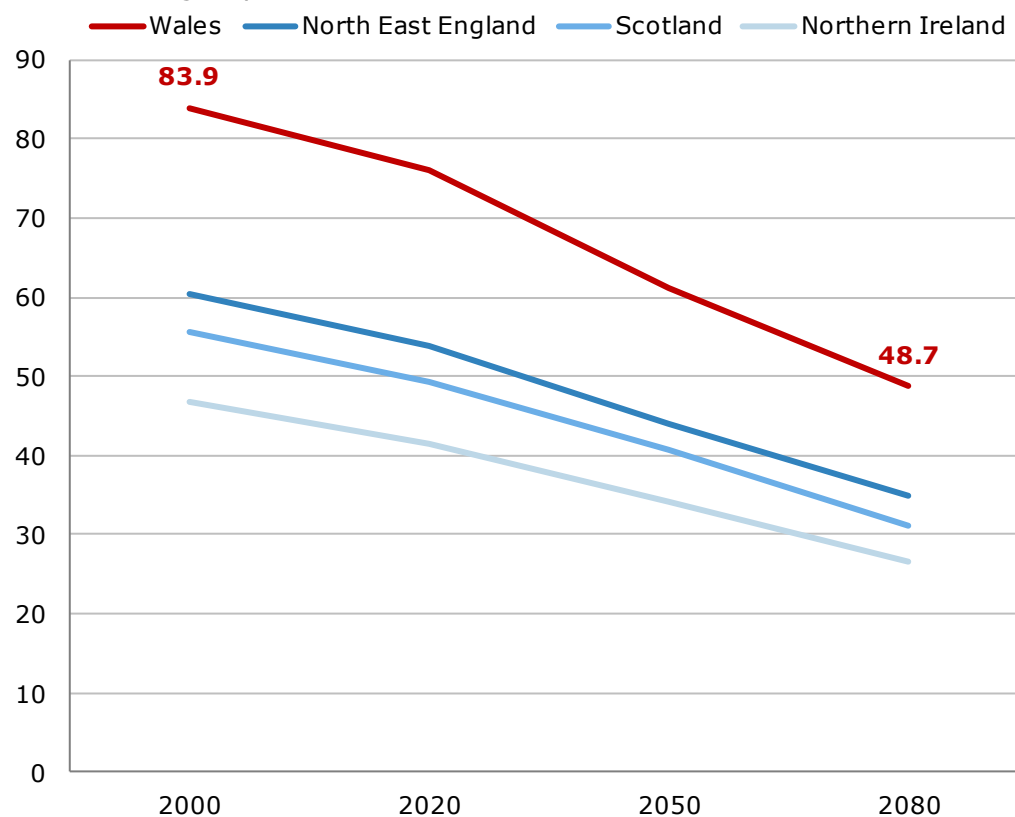
Heat-related deaths, crude rate per 100,000, all persons, all ages, Wales, North East England, Scotland & Northern Ireland, 2000-2080

Produced by Public Health Wales Observatory, using data from the Health Protection Agency



Cold-related deaths, crude rate per 100,000, all persons, all ages, Wales, North East England, Scotland & Northern Ireland, 2000-2080

Produced by Public Health Wales Observatory, using data from the Health Protection Agency



Please note: The projected heat and cold-related death rates do not take into account changes from the baseline of the relative risks, temperature thresholds and baseline mortality rates for each region. They do reflect a pattern of increasing mean daily temperature and the increasing size of the region's populations.

There is potential for new epidemics caused by changes in host, pathogen or environment. Lyme disease has quadrupled in the last 8 years, possibly due to an increase in the UK mean temperature.

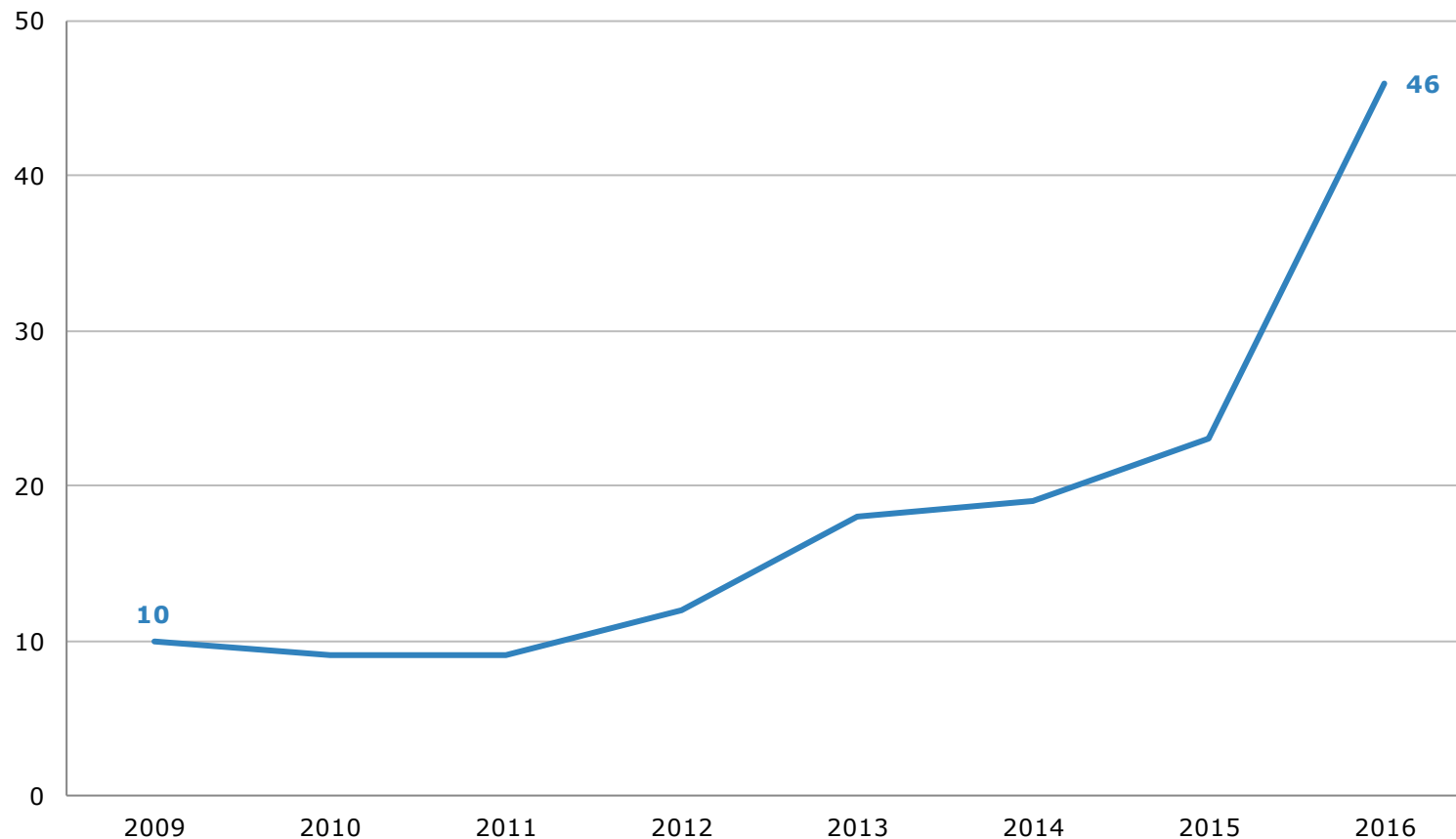


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Total number of laboratory confirmed cases of Lyme borreliosis, all persons, all ages, Wales, 2009-2016

Produced by Public Health Wales Observatory, using Lyme Reference Service (PHE)



Acknowledgements

Project members

Team (analysis and writing): Holly Walsh (Project Manager), James Allen, Hugo Cosh, Andrew Dring, Arthur Duncan-Jones, Rhian Hughes, Grace Jefferies, Leon May, Rhys White

Project Board: Alisha Davies, Ciaran Humphreys, Nathan Lester, Kirsty Little

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For more information, please see the accompanying:

Infographic

Summary

Technical Guide