



Llywodraeth Cymru  
Welsh Government

# ***Data mining Wales:***

## ***The annual profile for substance misuse 2016-17***

Annual statistical report on alcohol and drug use on health, social care and education services in Wales through the life course

# About Public Health Wales

**Public Health Wales exists to protect and improve health and wellbeing and reduce health inequalities for people in Wales. We work locally, nationally and internationally, with our partners and communities.**

**The Substance Misuse Programme works to address both the current and emerging public health threats in Wales and in line with the overarching strategic objective to ‘reduce health inequalities, and prevent or reduce communicable and non-communicable disease, wider harms and premature death related to drugs and alcohol’.**

## **Substance Misuse Programme**

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**Published by Public Health Wales, Cardiff. UK. October 2017**

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## Introduction

This statistical report provides a summary of routinely-reported substance misuse related evidence currently available in Wales. Evidence is drawn from a number of data sources including information from NHS Wales sources, the Harm Reduction Database (HRD) Wales, the Welsh National Database for Substance Misuse (WNDSM), Office for National Statistics (ONS) information, Education, and Home Office data. This report is intended for use alongside the Welsh Government Substance Misuse report on treatment data for the same period to provide a complete profile on the scale and nature of substance misuse, both drug and alcohol use, in Wales.

As in previous years, the report is structured to better explore the evidence relating to substance misuse over the life course, from prenatal and maternal use of drugs and alcohol, through to substance misuse in older people. The profile will also evidence geographic variations in the health harms related to both drugs and alcohol in terms of hospital admissions, disease rates and deaths, as well as trends over time.

The report also includes more detail on a wider range of measures than in previous years, reflecting the most recent developments in contemporary research on substance misuse. Notably, more detail is present this year on alcohol specific and alcohol-attributable conditions at both a person and an admission level. As described in more detail in the Appendices, these measures taken together provide a detailed picture of the impact that alcohol has across the population over the life course and also the impact that alcohol related illnesses place on healthcare services.

Within section 1, the report presents population based data relating to self-report use and objective measures including hospital admissions in order to provide an overview of the context and extent of health harms and risk behaviour related to drug and alcohol use in Wales. Subsequent sections will then focus on specific age groups: Children and young people (aged 0-24 years), working aged adults (aged 25-49 years) and older people (aged 50 years and above) and, where data is available, provide geographic profile by health board and local authority. It is hoped that by doing so, this report will prove an essential resource both to those responsible for providing and planning health and related services that prevent and/or address the harms associated with drug and alcohol misuse in Wales and the wider UK, as well as those with a broader interest in substance misuse, wider social determinants and implications.

## Executive Summary

### Population level trends

- The number of individuals admitted to hospital for an alcohol specific conditions are 2.3 times higher than admissions for illicit drug use.
- The number of individuals assessed within substance misuse services in Wales in 2016-17 fell by 5.0 per cent compared to previous year. Of all assessment, 52.6 per cent were primary problematic alcohol clients, and 46.7 per cent were primary problematic drug clients and the remainder reported problematic use of both drugs and alcohol.
- In relation to deprivation, the proportion of all patients admitted for alcohol specific conditions living in the most deprived areas was 3.8 times higher than those from the least deprived areas. In relation to illicit drug use, this figure rose to 6.3 times higher.
- Deaths from drug misuse rose by 14.3 per cent to 192 deaths and alcohol deaths rose by 8.9 per cent to 504 deaths in 2016.

### Children and young people (under 25)

- There were 4,855 children in need registered with local authorities at 31 March 2016 due to parental substance misuse, a fall of 2.2 per cent on the figure for 2015. The number of children in need whose own substance misuse was identified as a problem was 1,020, 4.6 per cent higher than the previous year.
- There were 922 admissions involving young people aged under-25 with an alcohol specific condition in 2016-17, a fall of 11.6 per cent compared with 2015-16. There was also a decrease in admissions for illicit drugs of 1.4 per cent amongst this age cohort in 2016-17.

### Working aged adults (25-49 years)

- Amongst this age cohort, hospital admissions for alcohol specific conditions have decreased by 10.1 per cent on the previous year and 22.9 per cent over the last decade. However, admissions for illicit drugs have increased by 1.9 percentage points on the previous year
- Opioids continued to account for considerably more hospital admissions than any other illicit substance. The number of admissions for opioids has risen over the past three years and by 16.7 per cent in the last five years.
- Substantial increases were seen in assessments in which cocaine / crack was reported as the primary problematic substance. Assessments for opioid use remain stable.

### Older people (Aged 50 years and above)

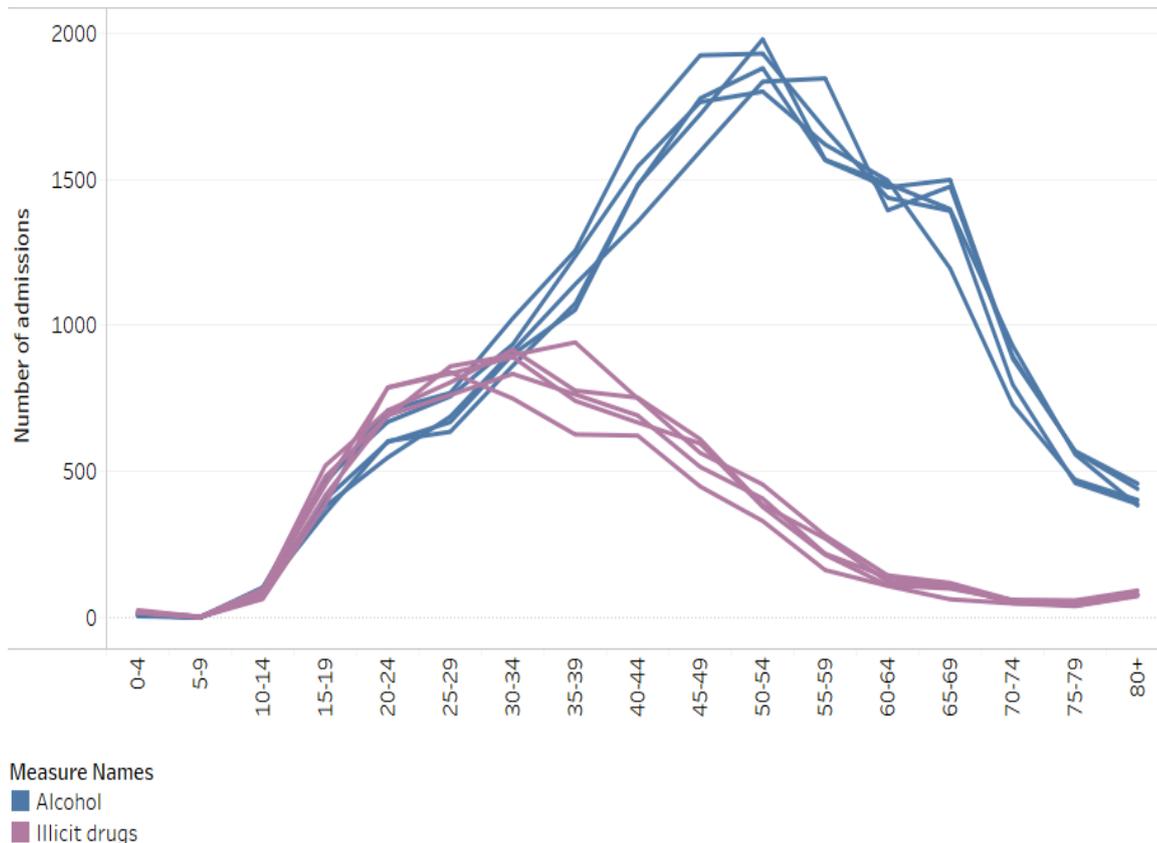
- Individuals aged 50 and over made up 18.8 per cent of all those admitted to hospital in 2016-17 following illicit drug use. Admissions for alcohol specific conditions are falling.
- Specialist substance misuse assessments for alcohol decreased by 1.4 per cent on 2015-16 but remain 28.7 per cent higher than that recorded in 2012-13. There were 323 assessments where opioids were reported as the main substance, an increase of 10 per cent from 2015-16.

## Headline population trends

### Alcohol specific and illicit drug poisoning hospital admissions

One measure commonly used to describe the harms of alcohol and illicit drugs to individuals is hospital admissions. Although likely to be reflective of harms associated with use at the more problematic end of the alcohol and drug use spectrum, figures for hospital admission can provide a useful and, importantly, consistent gauge of these harms over time. Some of the complexities and definitions involved in using hospital admissions data are described in detail in Appendices I and 3 this document.

Hospital admissions for alcohol specific conditions and illicit drugs are shown by year in Chart I. In 2016-17, there were 6,518 hospital admissions related to illicit drugs and 15,165 alcohol specific admissions over the same period. As can be seen from the Chart, admissions in different age groups are relatively stable over time, with comparable numbers of admissions for both groups of conditions to the age group of 30-34, after which admission for illicit drugs fall steadily whilst those for alcohol related conditions continue to rise, peaking in the late 50-54 age group. It is important to note that one individual may be admitted for both alcohol and illicit drug related conditions and that an individual admission may be the result of both alcohol and illicit drug use.

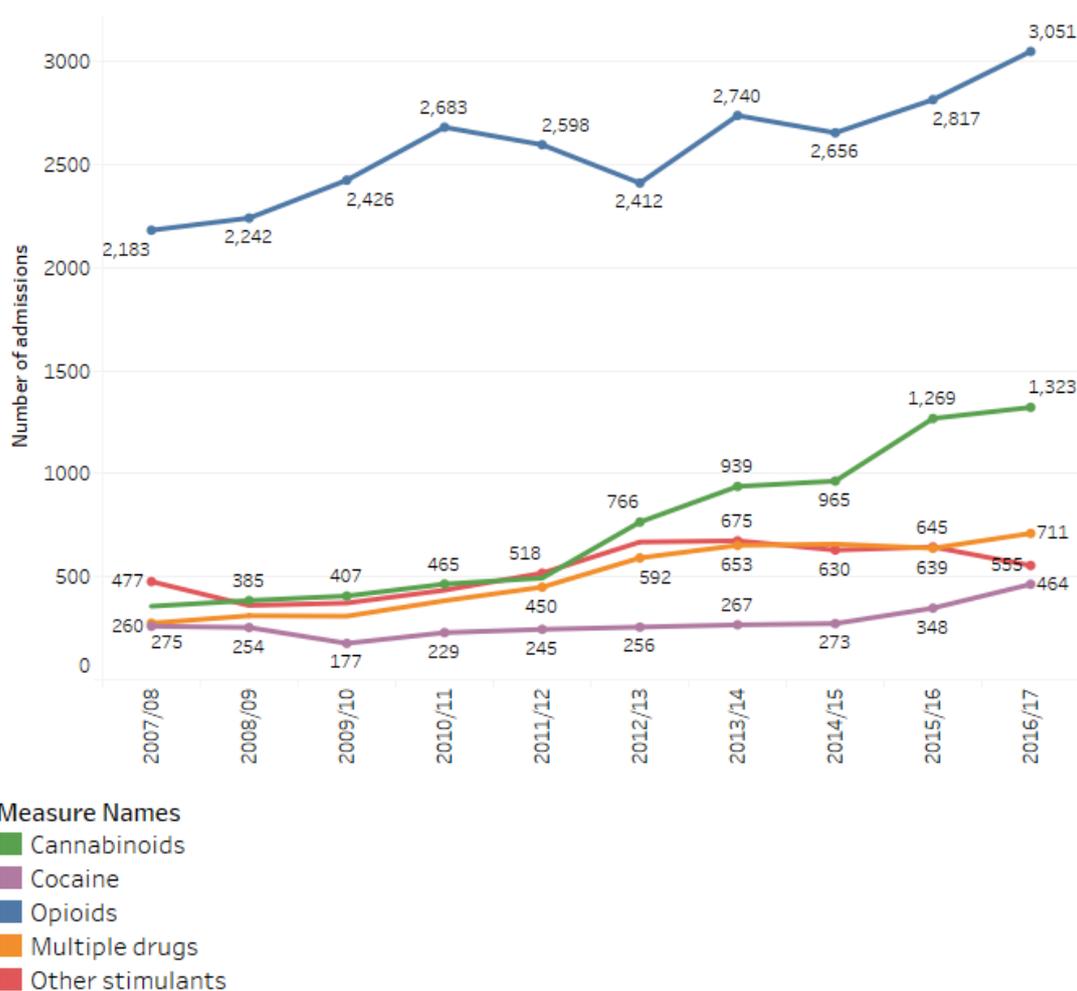


Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart I: Hospital admissions for alcohol specific conditions and illicit drugs, 20102-13 to 2016-17**

## Hospital admissions for poisonings with illicit drugs

The overall number of hospital admissions for poisonings with named illicit drugs has increased by 3.6 per cent from 6,290 in 2015-16 to 6,518 in 2016-17 and by 21 per cent in the five-year period since 2012-13. However, the trends in number of admissions and individuals varies by age group and gender which will be described in the relevant sections of this report. In terms of specific named illicit drugs, admissions are highest for opioid poisonings, as shown in Chart 2, with a gradual but inconsistent trend in increased admissions. More recently, increases in admissions have been recorded for cannabinoids. It is important to note that no distinction is possible in hospital admissions for different cannabinoid products: cannabis resin, stronger strains of herbal cannabis 'skunk,' or newer forms of synthetic cannabinoid receptor agonists (SCRAs), sometimes referred to as 'legal highs', 'Spice' etc. WEDINOS, a project testing and profiling substances submitted from across Wales provides evidence of a substantial market for SCRAs in Wales<sup>1</sup>. In addition, stronger strains of cannabis may also be more widely available. Further research is required to better evidence increases in hospital admissions relating to cannabinoids in all relevant age groups.



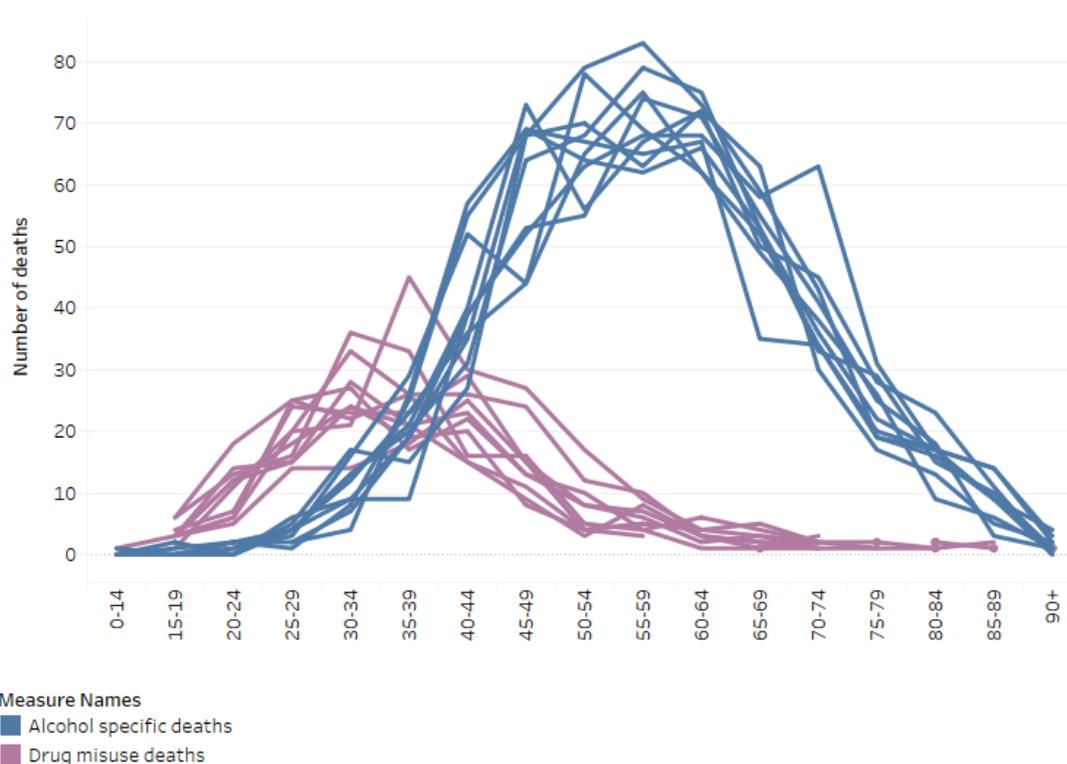
Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 2: Hospital admissions for poisonings with named illicit drugs, Wales 2006-7 to 2016-17**

<sup>1</sup> WEDINOS (2015) Philtre annual report, 2014-15. Public Health Wales. Available at: <http://www.wedinos.org/newsletter.html>

## Alcohol related deaths and deaths from drug misuse

As with the data presented for drug and alcohol hospital admissions above, both alcohol and drug related deaths steadily increase towards the ages of 30-34 years, as shown in Chart 3. However, whilst the number of drug deaths remains relatively stable in any given year up to 40-44 years and then steadily declines, alcohol related deaths continue to rise to a later peak amongst 50-59 years cohort with sustained higher rates of death over a wider age range than is seen with deaths from drug misuse.



Source: Office for National Statistics, 2017

**Chart 3: Deaths from drug misuse and alcohol specific conditions, Wales, 2007-2016, by age quintile**

## Alcohol specific and alcohol attributable hospital admissions

‘Alcohol specific conditions’ are commonly defined as those conditions, such as alcoholic liver disease, which are 100 per cent attributable to the use of alcohol. Recently, additional measures related to ‘alcohol-attributable conditions’ have become more frequently reported in literature evaluating alcohol harms. Alcohol-attributable measures include those conditions which have been evaluated as partially, but not completely, caused by alcohol consumption when considered across the whole population. Alcohol-attributable figures therefore add a further dimension to analysis of alcohol harms. Both alcohol specific and alcohol attributable hospital admissions can be described in ‘person based’ measures (the number of individuals admitted in a given time period, with each counted only once) or ‘admission based’ measures (where all admissions of all individuals are

included, as often one individual may be admitted on more than one occasion in a given year). See Appendix I for a more detailed description.

Table I shows detailed figures for key alcohol indicators across Wales for the most recent five years. There were 10,081 individuals admitted with an alcohol specific condition in any diagnostic position in 2016-17, accounting for 13,512 admissions, a decrease of 7.6 per cent on admissions from the previous year. An alcohol specific condition was recorded in the primary position in 2,938 cases, 21.7 per cent. The number of individuals admitted for alcohol specific conditions has continued to fall in 2016-17 for both men and women, however, this decrease was only marginal, 0.1 per cent, from 2015-16 and 1.4 per cent since 2012-13. Figures for alcohol-attributable admissions showed a slight increase by indicator (person or admission based) and sex on the last year, with increases in individual alcohol attributable admissions of 1.4 per cent and 0.7 per cent for males and females respectively. These increases are more pronounced over the five-year period, with comparable figures at 4.8 per cent for males and 3.2 per cent for females. In turn, alcohol attributable admissions have also increased over the last five years, by 6.7 per cent for males and 6.9 per cent for females.

**Table I: Hospital admissions related to alcohol, individuals resident in Wales, by indicator, sex and years 2012-13 to 2016-17**

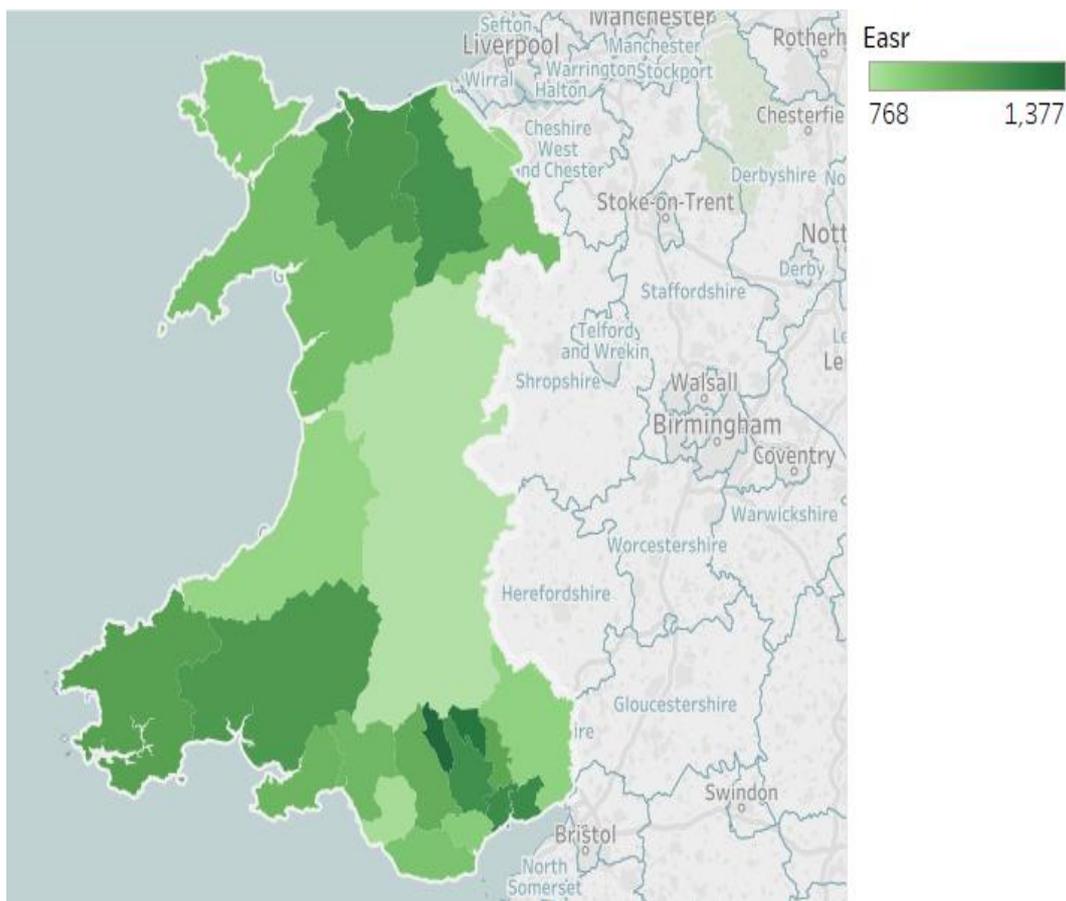
	Sex	2012-13	2013-14	2014-15	2015-16	2016-17
<b>Number individuals admitted with an alcohol specific condition in any diagnostic position</b>	All persons	10,223	10,616	10,208	10,095	10,081
	Male	6,720	6,954	6,628	6,610	6,587
	Female	3,503	3,662	3,580	3,485	3,494
<b>Number admissions to hospital with an alcohol specific condition in any diagnostic position</b>	All persons	14,680	15,500	14,799	14,626	13,512
	Male	9,832	10,306	9,771	9,637	8,850
	Female	4,848	5,194	5,028	4,989	4,662
<b>Alcohol attributable admissions, broad measure, person based</b>	All persons	34,087	35,077	34,932	35,279	35,521
	Male	21,750	22,457	22,255	22,571	22,788
	Female	12,337	12,620	12,677	12,708	12,733
<b>Alcohol attributable admissions, broad measure, episode based</b>	All persons	51,309	53,756	53,938	54,268	54,785
	Male	33,278	34,999	34,984	35,174	35,508
	Female	18,030	18,757	18,954	19,094	19,277

## Alcohol related hospital admissions by local authority (residents) in Wales

There was considerable geographical variation in directly standardised rates (see Appendix 6) of alcohol specific hospital admissions across Wales as shown in Table 2. Merthyr Tydfil was again the Local Authority area that recorded the highest rate with 456 individuals per 100,000 population, a rate 1.8 times the comparable rate recorded in Powys. Over the last year, nine of the 22 Local Authority areas saw a decrease in rates of individual admissions, including all six authority areas in Betsi Cadwaladr University Health Board area. The largest increases in rates were seen across the Hywel Dda University Health Board area. Figure 1 provides a visual representation of the number of hospital admissions for 2016-17 EASR by Local Authority area.

**Table 2: Individuals resident in Wales admitted to hospital for an alcohol specific condition in any position, 2016-17, by Local Authority area, European Age Standardised Rate**

Health Board area	Local Authority area	EASR, 2016-17	Change since 2015-16	Change since 2012-13
<b>ABMU</b>	Bridgend	265	7%	-7%
	Neath Port Talbot	326	10%	-4%
	Swansea	330	0%	-3%
<b>Aneurin Bevan</b>	Blaenau Gwent	436	12%	-5%
	Caerphilly	392	2%	3%
	Monmouthshire	285	6%	14%
	Newport	400	-7%	-6%
	Torfaen	354	-2%	-0%
<b>BCU</b>	Conwy	375	-3%	-2%
	Denbighshire	389	-5%	6%
	Flintshire	282	-6%	-10%
	Gwynedd	320	-17%	-19%
	Isle of Anglesey	300	-21%	-22%
	Wrexham	320	-17%	-5%
<b>Cardiff and Vale</b>	Cardiff	295	2%	-9%
	Vale of Glamorgan	309	13%	-10%
<b>Cwm Taf</b>	Merthyr Tydfil	456	3%	20%
	Rhondda Cynon Taf	343	-7%	-7%
<b>Hywel Dda</b>	Carmarthenshire	375	25%	46%
	Ceredigion	279	13%	17%
	Pembrokeshire	363	3%	-14%
<b>Powys</b>	Powys	255	0%	6%
<b>Wales</b>	<b>Wales</b>	<b>330</b>	<b>0%</b>	<b>-3.0%</b>



Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

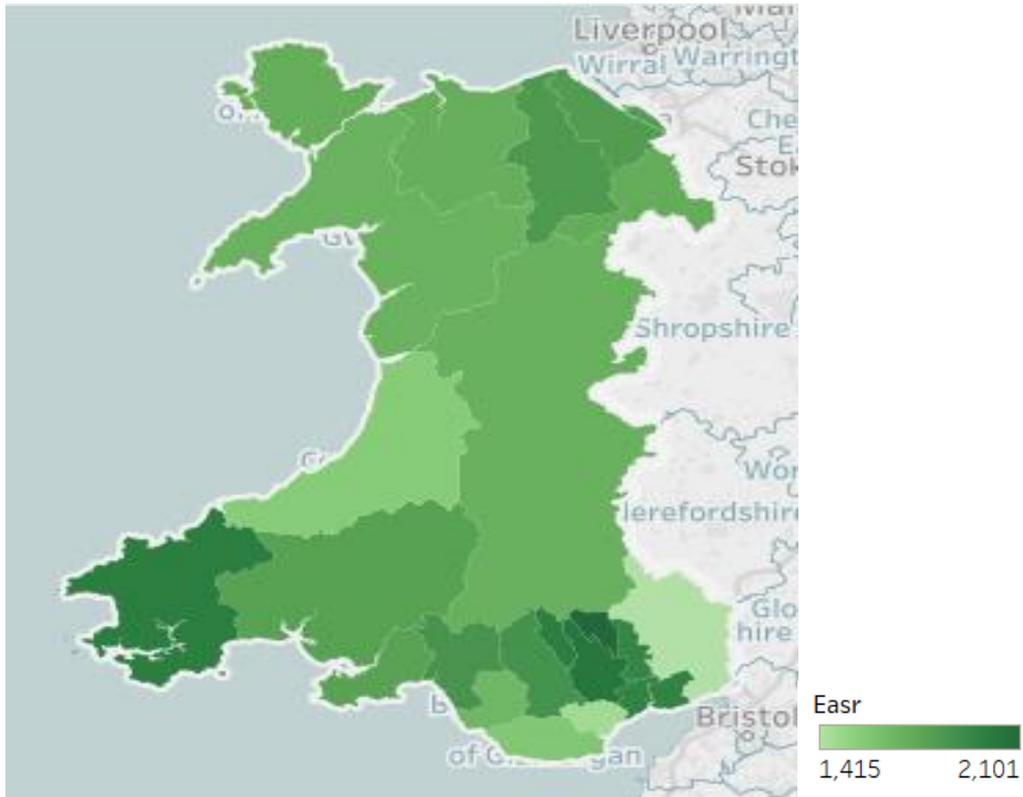
**Figure 1: Hospital admissions for an alcohol specific condition in any position, 2016-17, by Local Authority area, European Age Standardised Rate**

Table 3 and Figure 2 present rates per 100,000 for alcohol-attributable admissions (episode-based, broad measure) in 2015-16. Merthyr Tydfil was the Local Authority Area with the highest directly standardised rate of alcohol-attributable admissions (broad measure, episode based) at 2,229 admissions per 100,000 population, 1.5 times the rates recorded in Gwynedd (1,478) and Monmouthshire (1,480). In line with patient admissions, the six local authority areas within the Betsi Cadwaladr University Health Board area saw declines in alcohol attributable admissions ranging from -21 per cent in Isle of Anglesey to -3 per cent in Conway. The largest proportionate rate increase was recorded in Carmarthenshire which recorded a 25 per cent increase over the last year and a 46 per cent increase over the past five years. Across Wales, there was no overall change in the rate of alcohol attributable admissions over the previous year with a 3 per cent decrease recorded over the past five years.

**Table 3: Alcohol-attributable hospital admissions, individuals resident in Wales, episode base, broad measure, 2016-17, by Local Authority area, European Age Standardised Rate**

Health Board area	Local Authority area	EASR, 2016-17	Change since 2015-16	Change since 2012-13
<b>ABMU</b>	Bridgend	1699	7%	10%
	Neath Port Talbot	1795	4%	2%
	Swansea	1717	0%	1%
<b>Aneurin Bevan</b>	Blaenau Gwent	2218	3%	-2%
	Caerphilly	1980	-2%	1%
	Monmouthshire	1480	2%	-3%
	Newport	1903	-3%	-1%
	Torfaen	1930	-4%	-2%
<b>BCU</b>	Conwy	1534	-5%	-4%
	Denbighshire	1684	-1%	4%
	Flintshire	1598	-2%	-1%
	Gwynedd	1478	-14%	-14%
	Isle of Anglesey	1364	-18%	-24%
	Wrexham	1496	-10%	-7%
<b>Cardiff and Vale</b>	Cardiff	1662	6%	4%
	Vale of Glamorgan	1749	8%	3%
<b>Cwm Taf</b>	Merthyr Tydfil	2229	7%	16%
	Rhondda Cynon Taf	1889	0%	6%
<b>Hywel Dda</b>	Carmarthenshire	2040	12%	27%
	Ceredigion	1615	8%	19%
	Pembrokeshire	2008	0%	9%
<b>Powys Teaching</b>	Powys	1836	4%	18%
<b>Wales</b>	<b>Wales</b>	1759	1%	3%

Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017



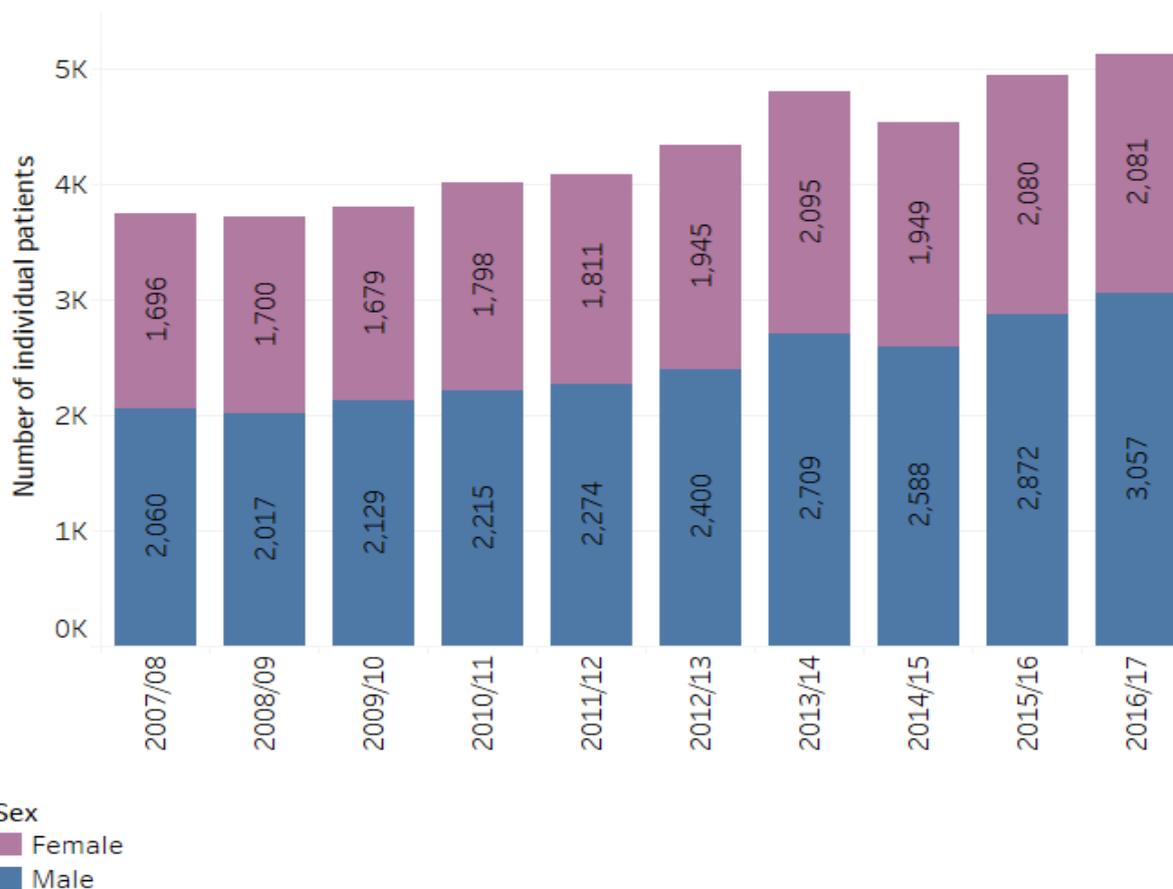
Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Figure 2: Alcohol-attributable hospital admissions, individuals resident in Wales, episode base, broad measure, 2016-17, by Local Authority area, European Age Standardised Rate**

### Hospital admissions involving use of illicit drugs

There were 6,518 admissions related to illicit drugs<sup>2</sup> in 2016-17, involving 5138 distinct individuals, representing a rise of 6.2 per cent and 3.9 per cent respectively from 2015-16. These rises may reflect a return to a trend of admissions rising year on year following a fall in 2014-15. Over ten years, the number of individuals admitted has risen by 36.8 per cent. The number of individuals admitted over this period is shown by gender in Chart 4.

<sup>2</sup> Note that the methodology for calculating hospital admissions related to illicit drugs has changed this year to bring it more in line with figures for alcohol related admissions and figures from other regions of the UK. Therefore figures presented here may not be comparable with those in previous reports. See Appendix 3 for further details on this measure.



Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 4: Individuals resident in Wales admitted to hospital with a condition related to illicit drugs, by year and gender 2007/8 to 2016-17**

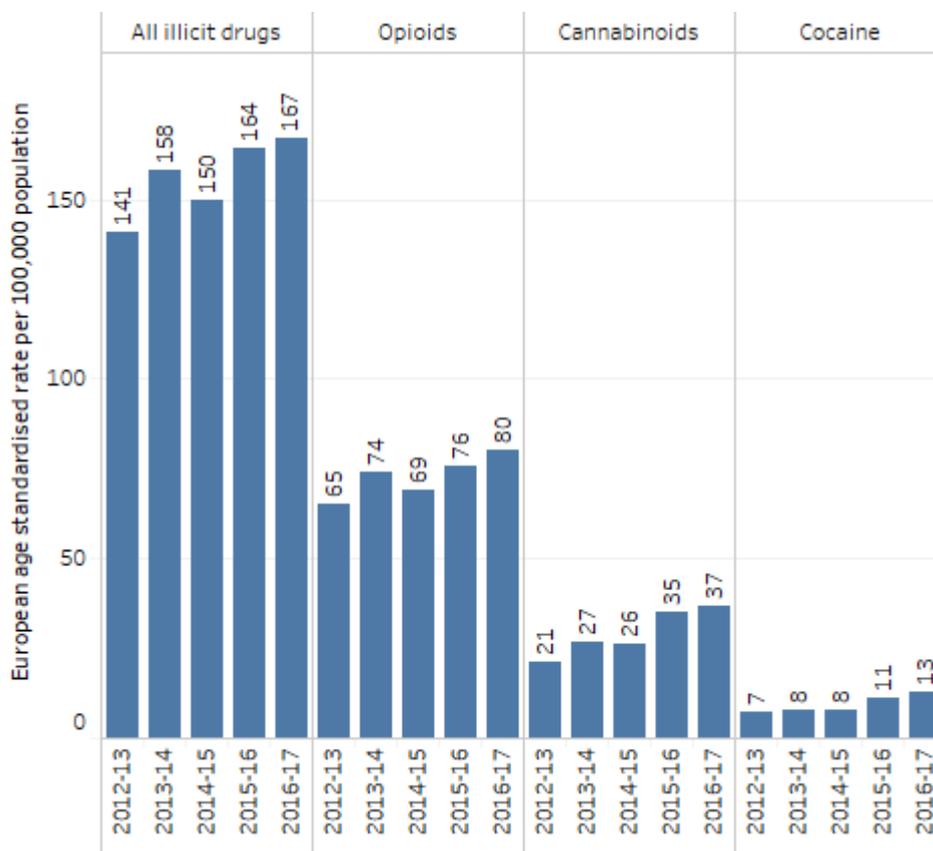
One notable aspect of hospital admissions in relation to illicit drugs is that there is a more even split between genders than for alcohol related admissions. Where 67.8 per cent of individuals admitted to hospital for alcohol specific conditions in any position in 2016-17 in Wales were men, the comparable proportion for illicit drugs was 58 per cent.

As shown in Chart 5, whilst the European Age Standardised rate for hospital admissions related to illicit drugs have risen over the past five years to 167 per 100,000 population, observed trends differed between different types of drugs. The rate of opioid related admissions has increased over the last five years from 65 to 80 per 100,000 population (23 per cent), whilst the rate of admissions for cannabinoids<sup>3</sup> has increased markedly, from 21 to 37 per 100,00 population over the same period, an increase of 71.2 per cent. Rates of cocaine admissions have increased only marginally and are at lower levels overall with admission rates of 13 per 100,000 population in 2016-17. It should be noted that evidence from sources in Wales such as WEDINOS, a project testing drugs submitted by individuals and organisations, suggests that a substantial market for synthetic cannabinoids (SCRAs) continues amongst discrete populations in Wales<sup>4</sup>. In addition, stronger strains of cannabis may also be more widely available.

<sup>3</sup> Note that it is not possible in hospital admission data to distinguish between herbal or resin cannabis and synthetic cannabinoids

<sup>4</sup> [www.wedinos.org](http://www.wedinos.org)

It should also be noted that admissions can involve more than one drug type and polydrug use is both regularly reported by those using illicit drugs and may significantly increase the risks and harms associated with drug use<sup>5</sup> but may not be consistently or routinely reported in hospital admission data. Of all admissions for illicit drugs in 2016-17, 711 (11.2 per cent) were reported as involving multiple drugs. Since 2007-08, the number of admissions for multiple drugs has increased by 173 per cent (from 260 to 711 admissions per year).

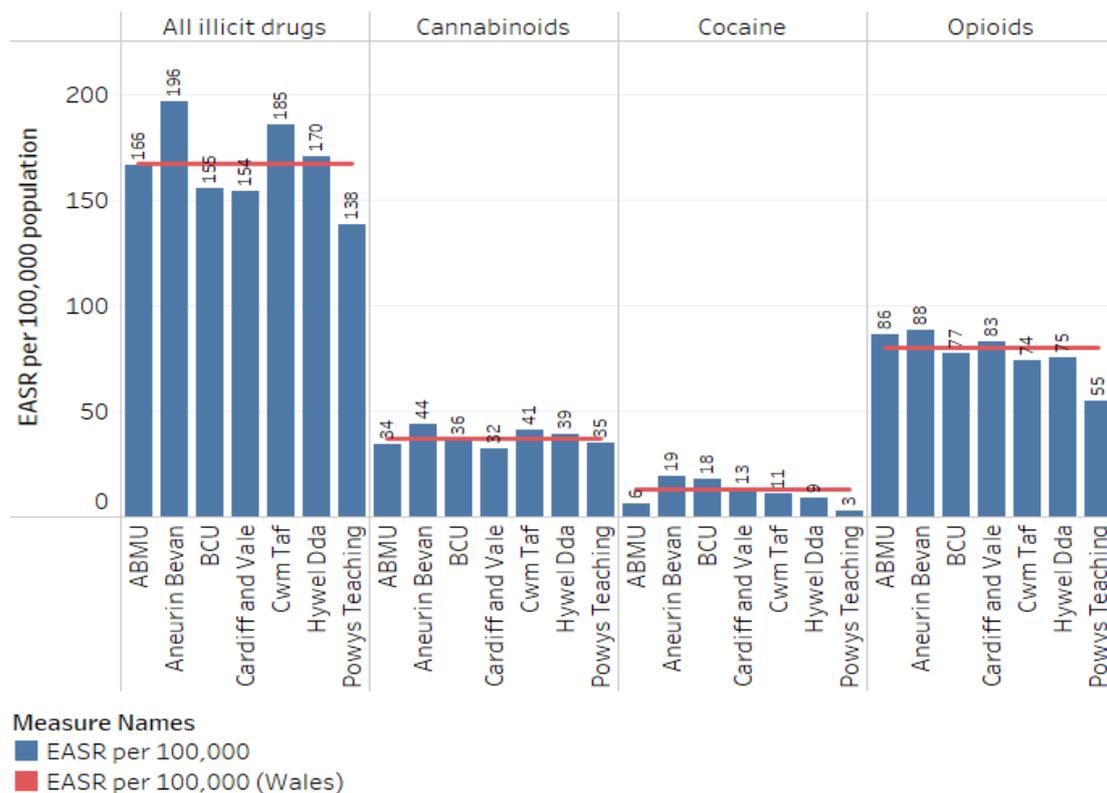


Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 5: Hospital admissions related to illicit drugs, Welsh residents, European Age Standardised Rate per 100,000, by drug type 2012-13 to 2016-17**

As with hospital admissions related to alcohol, there was geographic variation in illicit drug related admissions. As shown in Chart 6, Aneurin Bevan Health Board area has the highest rate of admissions related to illicit drugs (196 per 100,000 population) with Cwm Taf and Hywel Dda Health Boards both also above the Wales average directly standardised rate with 185 and 170 per 100,000 population respectively.

<sup>5</sup> Department of Health (England) and the devolved administrations (2007). Drug Misuse and Dependence: UK Guidelines on Clinical Management. London: Department of Health (England), the Scottish Government, Welsh Assembly Government and Northern Ireland Executive.  
[http://www.nta.nhs.uk/uploads/clinical\\_guidelines\\_2007.pdf](http://www.nta.nhs.uk/uploads/clinical_guidelines_2007.pdf)



Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 6: Hospital admissions related to illicit drugs, Welsh residents, European Age Standardised Rate per 100,000, by drug type and Health Board area 2016-17**

### Hospital admissions related to substance misuse: psychiatric admissions

Substance misuse related conditions that lead to hospital admission may be complex and long term, and may relate to a range of medical specialties. Table 4 shows the number of admissions to psychiatric hospitals of individuals resident in Wales and the total number of admissions which involved contact with the psychiatric specialism at any point during the hospital stay.

**Table 4: Admission to psychiatric hospital and contact with psychiatric specialism (any hospital) related to substance misuse, numbers and proportion (%) of all admissions**

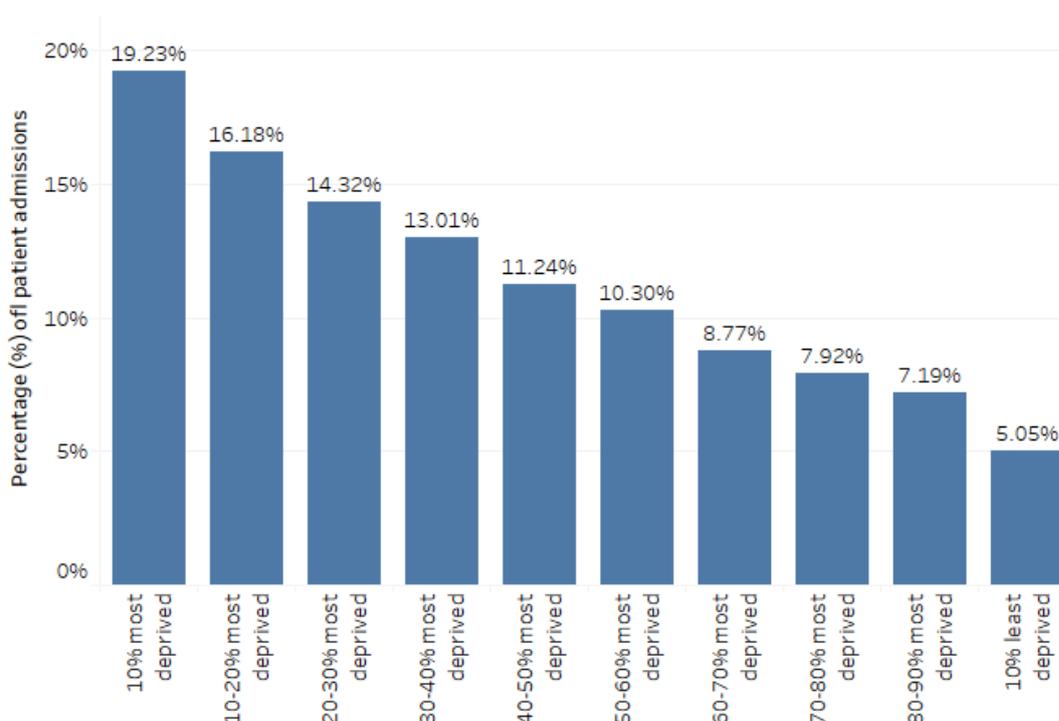
		2012-13	2013-14	2014-15	2015-16	2016-17
Alcohol specific admissions (any position)	Psychiatric hospital	411 (2.7%)	401 (2.5%)	320 (2.1%)	290 (1.9%)	241 (1.7%)
	Any contact with psychiatric specialism	411 (2.7%)	401 (2.5%)	320 (2.1%)	290 (1.9%)	241 (1.7%)
Illicit drug admissions (any position)	Psychiatric hospital	413 (7.7%)	490 (8.2%)	471 (8.2%)	478 (7.7%)	478 (7.3%)
	Any contact with psychiatric specialism	634 (11.8%)	744 (12.4%)	725 (12.5%)	707 (11.4%)	722 (11.0%)

Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

Admissions involving illicit drugs were considerably more likely to involve psychiatric services than those for alcohol specific conditions. Whilst there are no clear trends in data for the most recent five years, it is notably that both the numbers and the overall proportions of admissions related to alcohol specific conditions in which psychiatry is involved have fallen over the past five years, while those for conditions related to illicit drugs have remained relatively stable.

## Substance misuse and deprivation

There is considerable evidence of a relationship between substance misuse and deprivation<sup>6</sup>. The Welsh Government produces an index of multiple deprivation<sup>7</sup> which ranks every lower super output area (LSOA, small geographical areas with stable populations of about 1,500) on measures of deprivation. These measures allow every address in Wales to be allocated to a decile of deprivation and ranked from 10 per cent to 10 per cent least deprived. Hospital admission data includes details of these deciles. Note that deprivation is a measure of the area in which an individual lives, rather than an evaluation of their particular circumstances. Chart 7 and Chart 8 show the percentages of all patients resident in Wales and admitted to hospital with alcohol specific and illicit drug related conditions respectively by each deprivation decile.

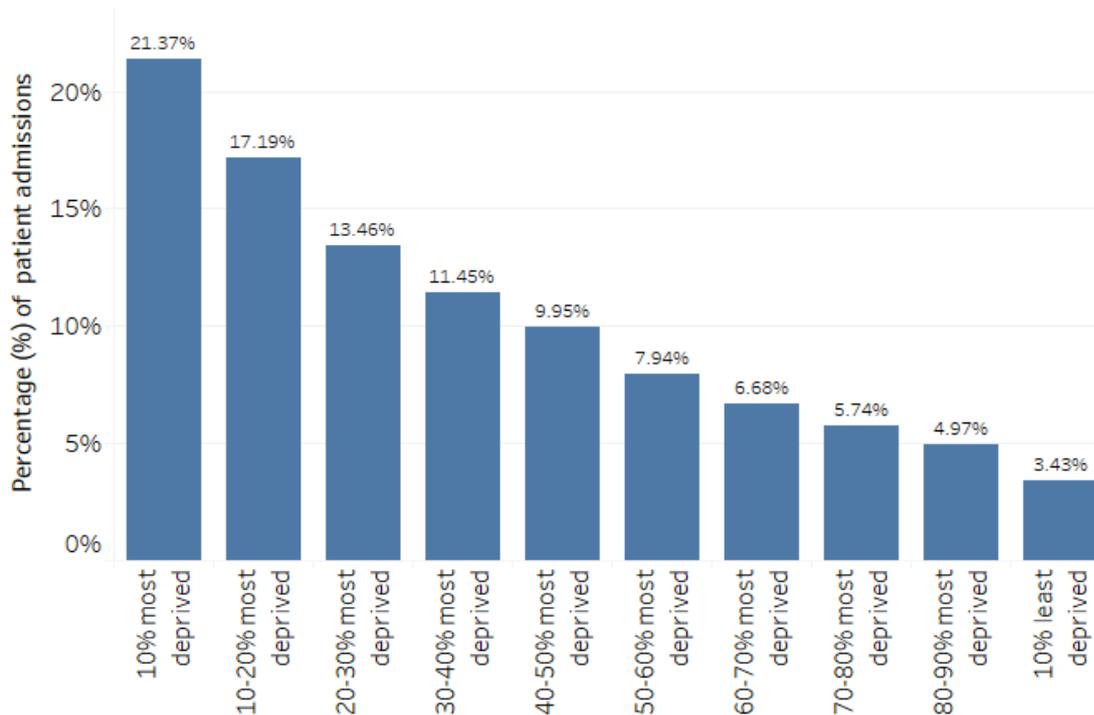


Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 7: Percentage of all individuals resident in Wales admitted to hospital with an alcohol specific condition in any position by deprivation decile, 2016-17**

<sup>6</sup> Local Government Association (2013) Tackling drugs and alcohol, local government's new public health role. [http://www.local.gov.uk/c/document\\_library/get\\_file?uuid=29b1bd72-bac4-46dd-9189-73ea23c38284&groupId=10180](http://www.local.gov.uk/c/document_library/get_file?uuid=29b1bd72-bac4-46dd-9189-73ea23c38284&groupId=10180)

<sup>7</sup> Welsh Index of Multiple Deprivation (WIMD), <http://gov.wales/statistics-and-research/welsh-index-multiple-deprivation/?lang=en>



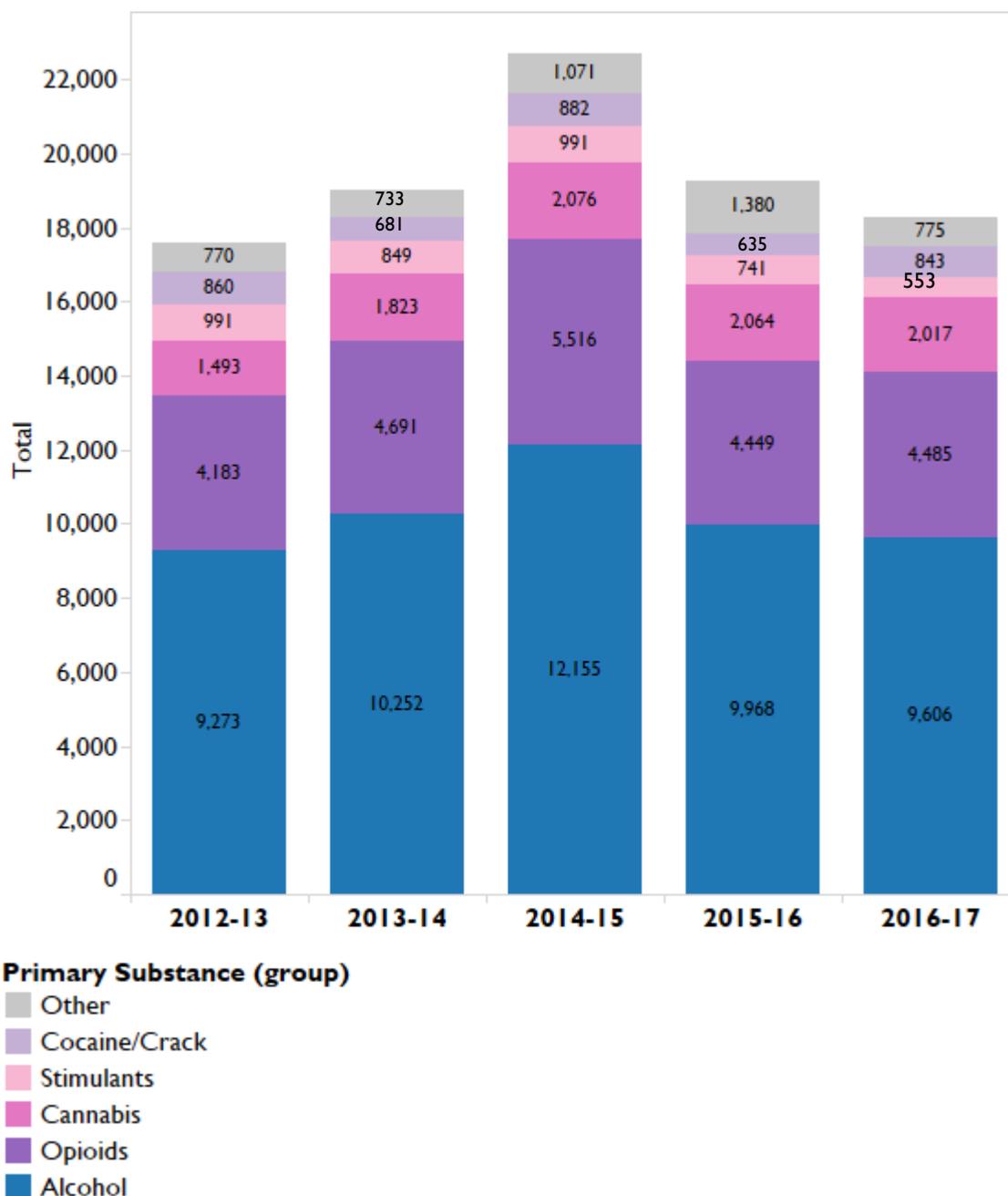
Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 8: Percentage of all individuals resident in Wales admitted to hospital with a condition related to illicit drugs in any position by deprivation decile, 2016-17**

The two charts above show a clear linear gradient amongst patients resident in Wales and admitted to hospital in relation to alcohol or illicit drugs in 2016-17. The proportion of all patients admitted for alcohol specific conditions who lived in the 10 per cent of most deprived areas was 3.8 times higher than those from the least deprived areas. Amongst those admitted for conditions related to use of illicit drugs, the contrast was even more striking - admissions were 6.3 times higher amongst those from the most deprived areas compared to least deprived, perhaps reflecting the additional contribution of criminalisation on deprivation and the associated impact on health and risk behaviours.

### Substance misuse service assessments

There were 18,279 individuals were assessed within substance misuse services in Wales in 2016-17, representing a fall of 5.0 per cent compared to previous year. Of these individuals, 9,606 (52.6 per cent) were primary problematic alcohol clients, of which 62.5 per cent were male, and 8,542 (46.7 per cent) were primary problematic drug clients of which 71.7 per cent were male. The remaining 131 individuals (0.7 per cent) reported concurrent problematic drug and alcohol use. Assessments by reported primary problematic substance are shown in Chart 11.



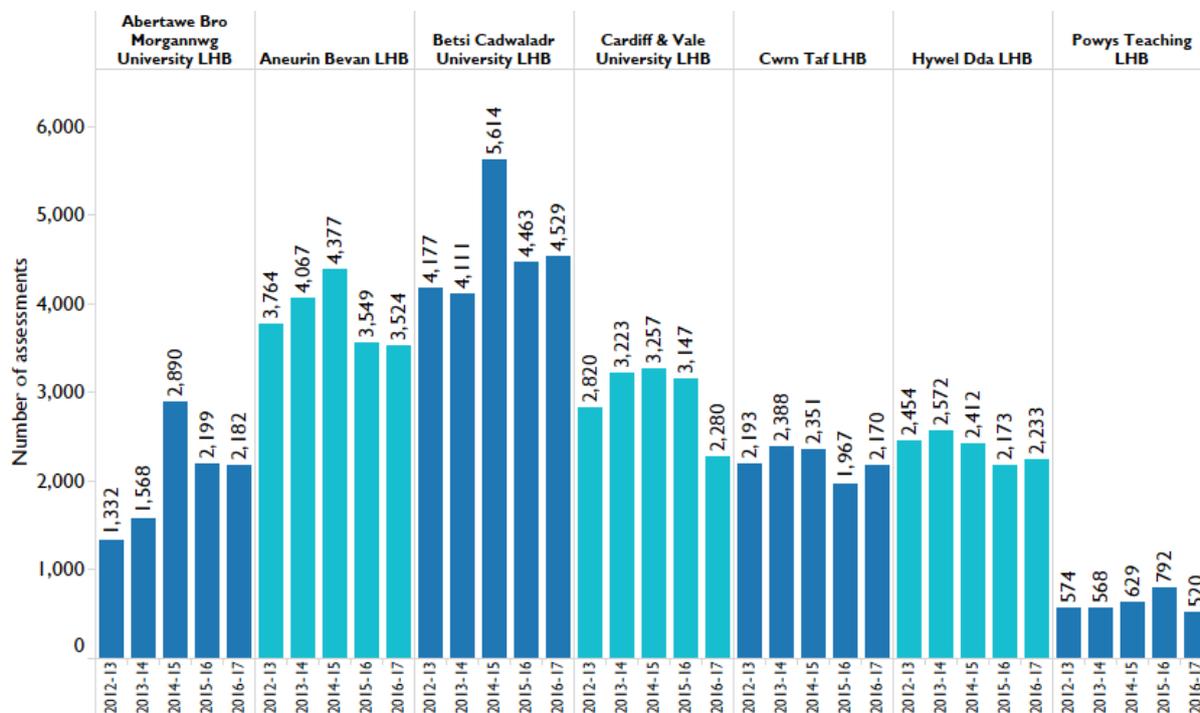
Source: Welsh National Database for Substance Misuse, 2013-14 to 2016-17

\* Opioids includes heroin, methadone and 'other opioids' categories

**Chart 9: Substance misuse assessments in Wales, by year and primary substance of use reported 2012-13 to 2016-17**

Amongst assessment for problematic drug use, opioids, principally heroin, were again cited as the most prevalent primary substance with 4,485 assessments (24.5 per cent), representing a marginal increase of 36 (0.8 per cent) on the previous year. Cannabis the next most frequently reported with 2,017 assessments (11 per cent) down from 2,064 assessments the previous year, a marginal decrease of 47 (2.3 per cent) on the previous year but an increase of -35.1 per cent from 2012-13.

Changes in the number of substance misuse assessments over the last five years and shown in Chart 10, by health board area. The number of assessments remained relatively stable over the last year in most health board areas with the exception of a reported decrease of 27.6 per cent in assessments in Cardiff & Vale University Health Board area and a decrease of 34.3 per cent in Powys. Assessments increased by 10.3 per cent in the Cwm Taf health board area.

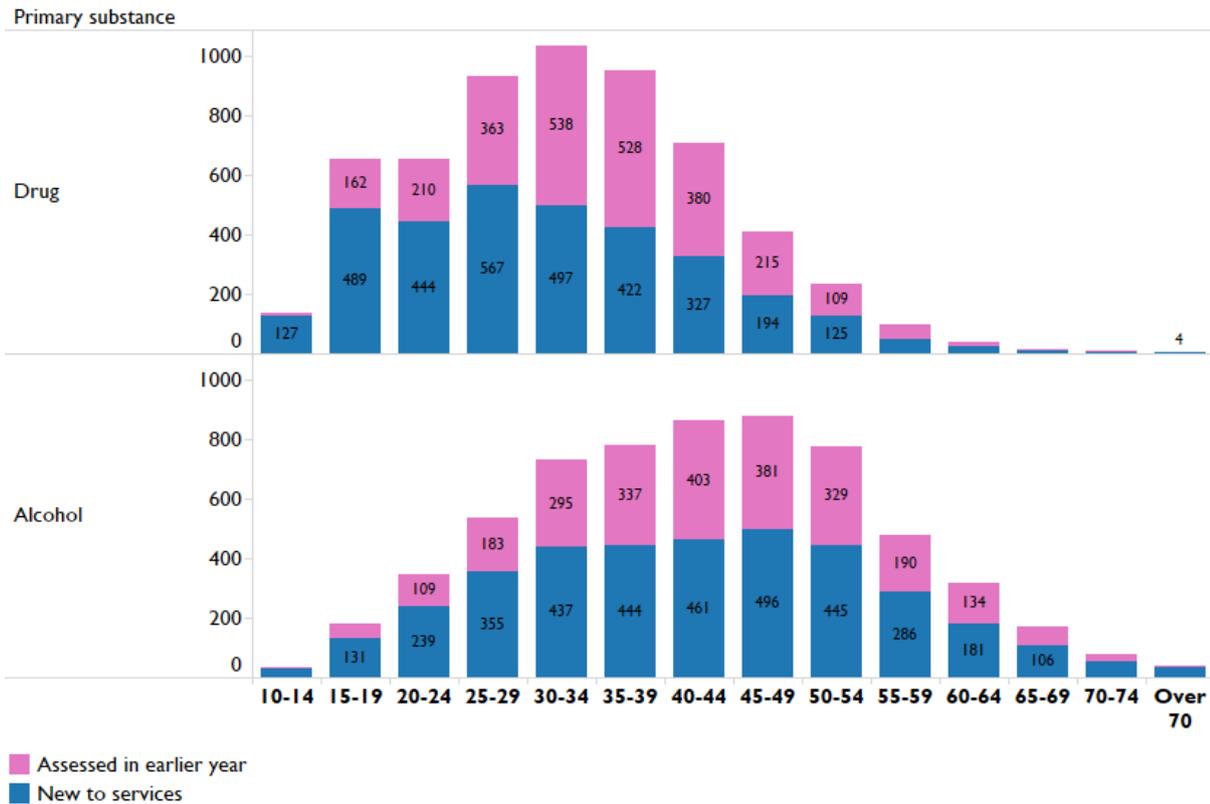


Source: Welsh National Database for Substance Misuse, 2017

**Chart 10: Substance misuse assessments carried out by services in Wales, by Health Board 2012-13 to 2016-17**

#### New individuals in contact with specialist substance misuse services

There were 7,863 individuals assessed in 2016-17 who had not previously been recorded as having an assessment with a substance misuse service in Wales, representing 56.7 per cent of all individuals assessed in that year. Amongst those new to services, there were 36,896 assessments for primary problematic alcohol use and 3,967 assessments for primary problematic drug use. Assessments for those known and new to services are shown in Chart 11 by primary problematic substance type.



Source: Welsh National Database for Substance Misuse, 2017

**Chart 11: Number of individuals assessed by substance misuse services in Wales in 2016-17 by primary substance reported (alcohol or drug) and by previous service contact**

The proportion of individuals assessed in 2016-17 who were new to services varied by primary problematic substance. Amongst primary problematic drug service users, the proportion new to services levelled off to around 50 per cent at the 30-34 year age mark and reduced in all subsequent age groups. However, amongst primary problematic alcohol services users a different pattern emerges with assessments amongst those new to services remaining greater than 50 per cent up at all age groups. The proportion of men and women who were new to services again varied across the primary problematic substance groups: for alcohol assessments 62 per cent (n=2454) were male; for drug assessments 72.8 per cent were male (n=2887).

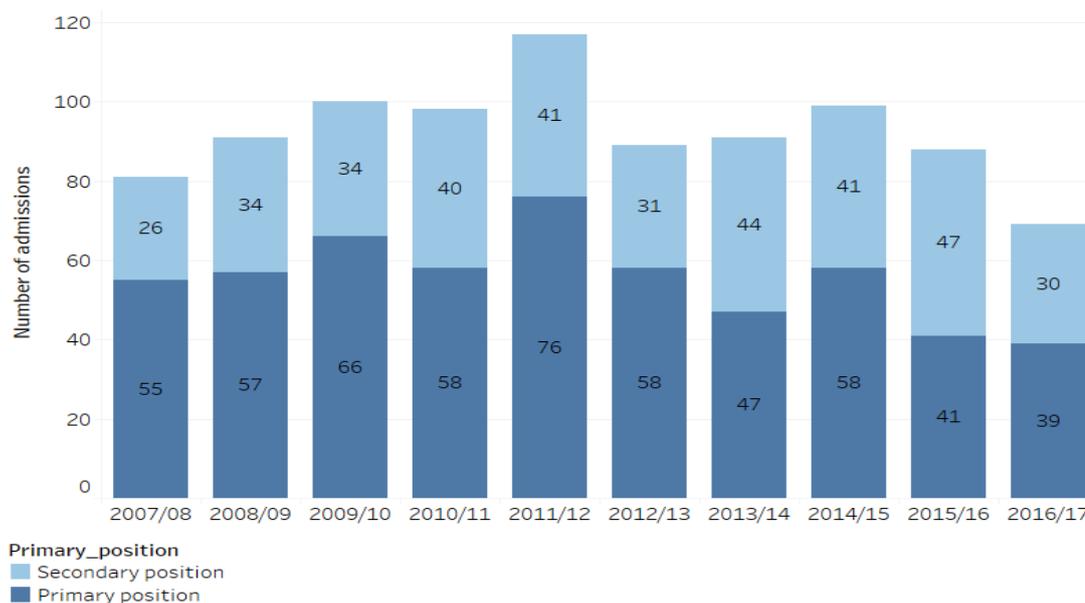
## Pre and post-natal health

### Conditions originating in the perinatal period: Foetal alcohol syndrome

Foetal alcohol syndrome (FAS) arises from maternal use of alcohol during pregnancy<sup>8</sup>. It is a serious condition that typically results in affected children experiencing restricted growth, learning and behavioural disorders and physiological problems. There were 6 admissions of Welsh residents to hospital in 2016-17 in which a diagnosis of FAS was recorded in any diagnostic position, stable from the previous year. No trend is observable in the number of admissions for FAS over the past ten years and such small numbers preclude further analysis.

### Foetus and New-borns affected by maternal use of or withdrawal from drugs of addiction

Hospital admissions for foetuses and neonates affected by maternal use, or withdrawal from, of alcohol or other drugs of addiction have declined over recent years (see Appendix I for detailed definition). In 2016-17 there were 69 admissions of Welsh residents in which these conditions were recorded in any diagnostic position, with a relevant condition recorded in the primary position in 39 cases (56.5 per cent). The number of admissions for these conditions was the lowest since 2007-08. Chart 12 shows the number of admissions for conditions related to maternal use of/withdrawal from drugs of dependency for the most recent ten years, by diagnostic position.



Source: Substance Misuse Programme, 2017

**Chart 12: Number of hospital admissions of foetuses and neonates affected by maternal use or withdrawal from alcohol and/or drugs of addiction, Welsh residents, 2007-08 to 2016-17**

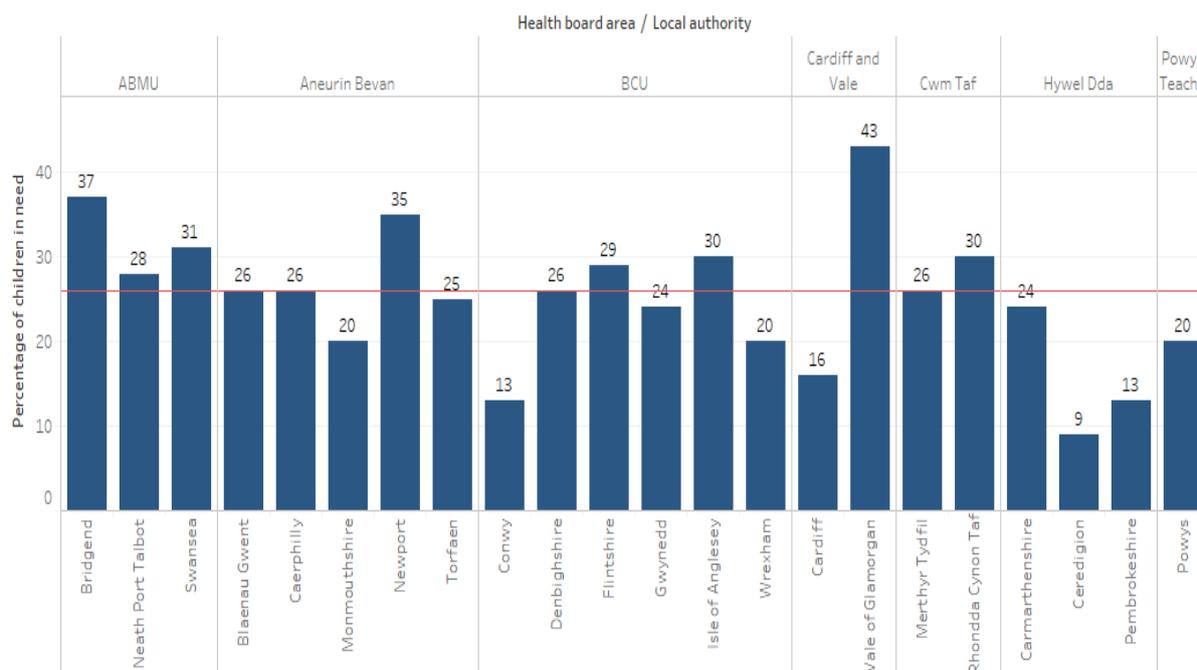
<sup>8</sup> Further information on Foetal Alcohol Syndrome and related conditions is available at: <http://www.nhs.uk/Conditions/foetal-alcohol-syndrome/Pages/Introduction.aspx>

## Children and young people (aged up to 24 years)

### School aged children

#### Children in need<sup>9</sup> with parental substance misuse

Overall there was a decrease of 2.1 per cent in the total number of children in need from 19,290 in 2015 to 18,885 in 2016. There were 4,855 children in need registered with local authorities at 31 March 2016<sup>10</sup> due to parental substance misuse, a fall of 2.2 per cent on the figure for 2015. As in previous years, there was considerable variation between local authorities in the proportion of children in need with parental substance misuse, as shown in Chart 13, with Wales average (26%) shown as red line. For children in need with parental substance misuse issues, the local authorities with the greatest number of cases were Rhondda Cynon Taf with 585 cases, followed by Swansea with 515 cases although proportionally, Vale of Glamorgan has the highest proportion of children in need with parental substance misuse indicated as a factor (43 per cent).



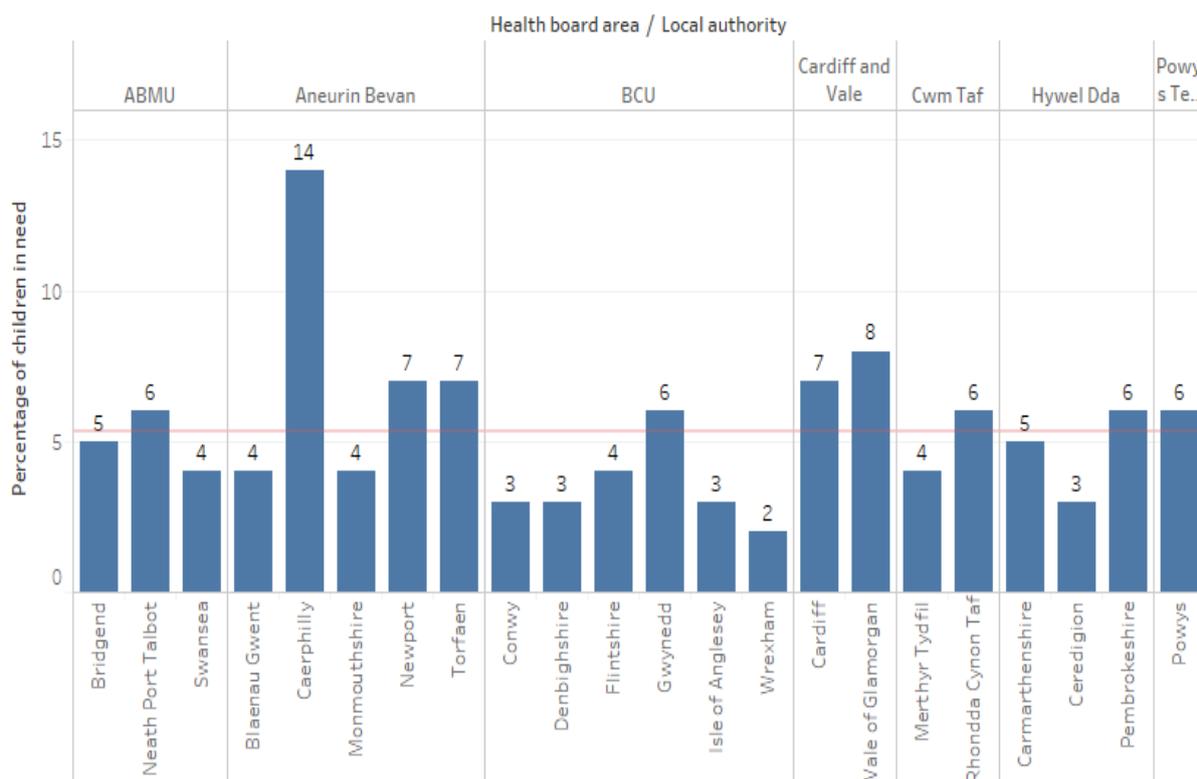
Source: Welsh Government, 2017

**Chart 13: Children in need in Wales, percentage with parental substance misuse problems by local authority, 31 March 2016.**

<sup>9</sup> The term 'child in need' is set out in the Children's Act (1989) as a child who is likely to have their health significantly impaired, or who is unlikely to maintain a reasonable standard of health and development without the provision of local authority children's services, or who is disabled. This is distinct from children 'in care' or 'looked after' (where a local authority has taken responsibility for care of a child in place of the child's parents) or 'children on the child protection register' which refers to children for whom there is a plan for protection in place.

<sup>10</sup> Statistics for Children in Need are gathered by census of open cases on the 31st March of each year and reflect the number at that point.

As at 31 March 2016, the number of children in need for whose own substance misuse was identified as a problem was 1,020, 4.6 per cent higher than the previous year. The percentage of children in need with substance misuse problems is shown by local authority in Chart 14.



Source: Welsh Government, 2017

**Chart 14: Children in need in Wales, percentage with substance misuse problem by local authority, 31 March 2016**

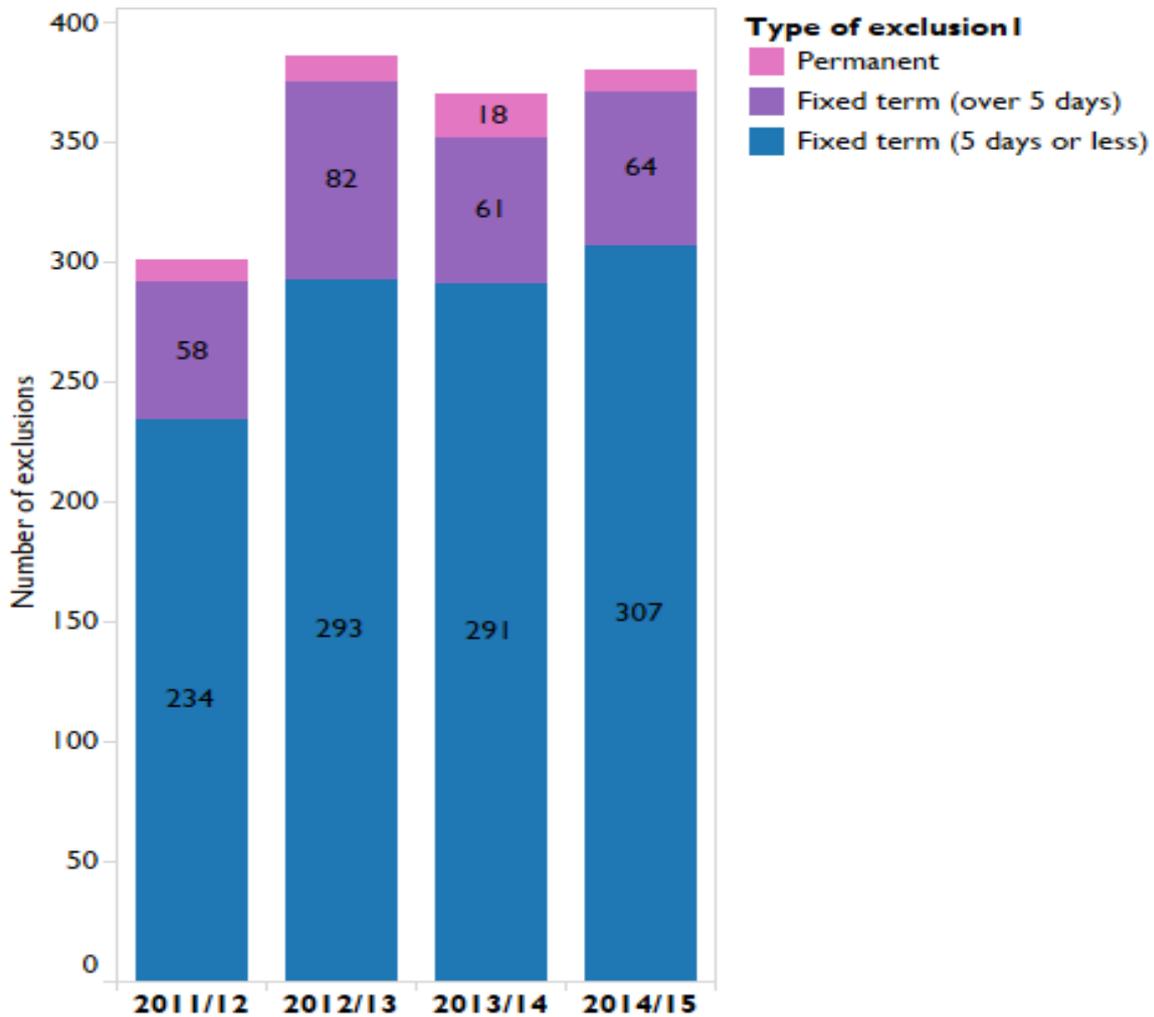
Caerphilly local authority area reported the largest number of cases, (n=175) of children in need with substance misuse problems and the highest proportion at 14 per cent.

There was no consistent relationship between the proportion of children in need with substance misuse problems and the percentage with parental substance misuse problems when compared between local authorities.

### School exclusions due to substance misuse<sup>11</sup>

In 2014-15, the most recent year for which statistics are available, the number of school exclusions related to drugs or alcohol rose overall from 370 to 380 (2.7 per cent) as shown in by type of exclusion in Chart 17.

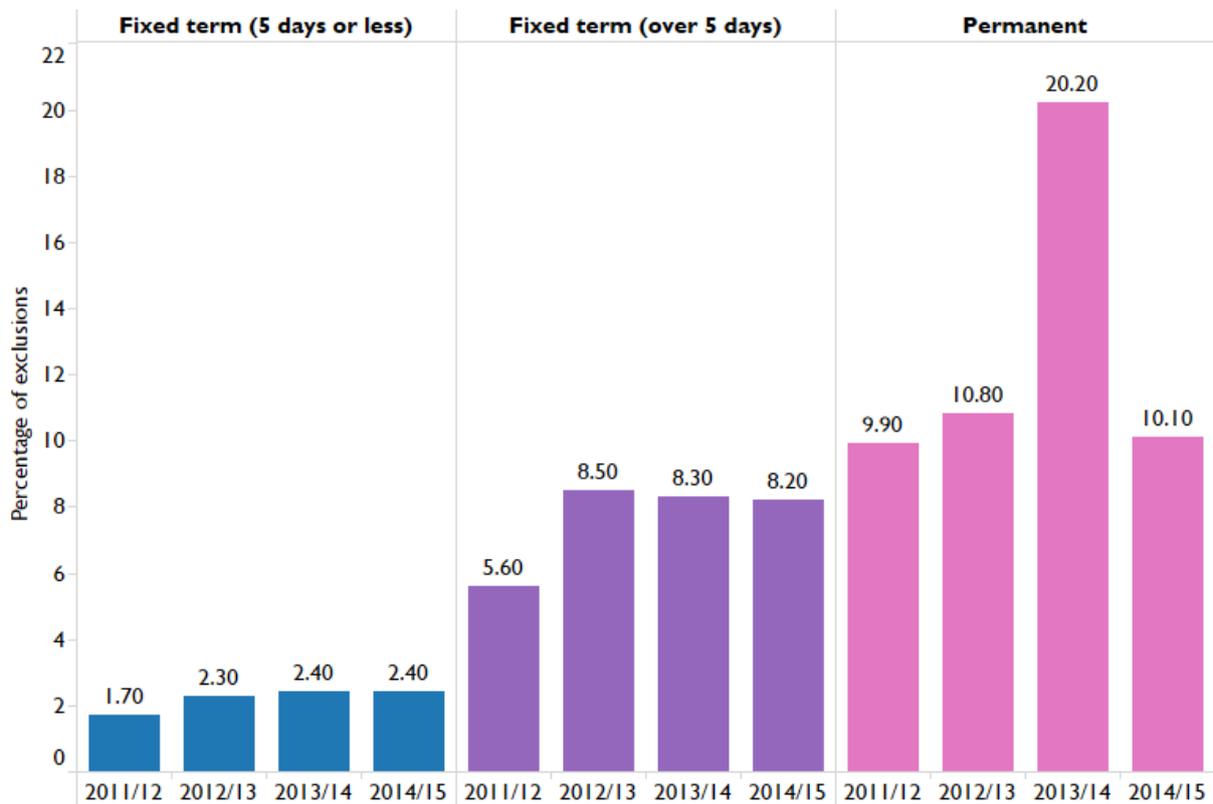
<sup>11</sup> Note that the methodology for producing these data has changed and therefore the figures in this report may not match those presented in previous reports <http://gov.wales/statistics-and-research/exclusions-schools/?lang=en>



Source: Welsh Government, 2017

**Chart 15: Number of exclusions from Welsh schools related to drugs and alcohol, 2011-12 to 2014-15, by type of exclusion**

The number of permanent pupil exclusions due to drug or alcohol decreased from 18 to 9 cases, whilst both the number of fixed term exclusions, 5 days or less or 5 or more days increased by 5.5 and 4.9 per cent respectively. Of all exclusions, drug and alcohol related exclusion accounted for 2.7 per cent in 2014-15. Figures for the most recent four years are shown in Chart 16.



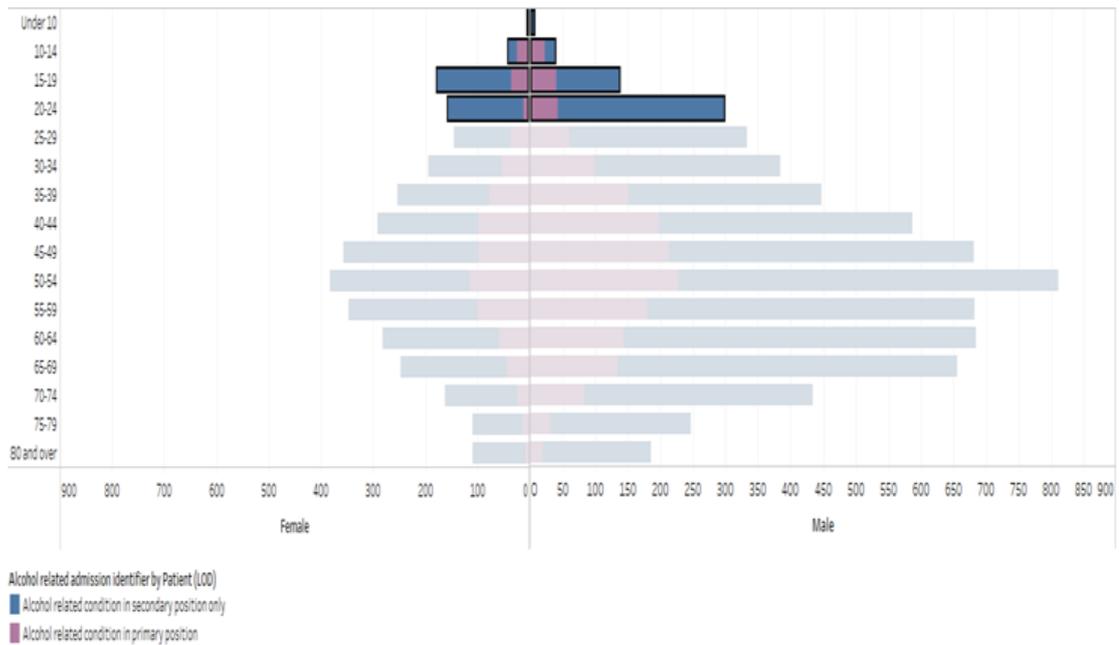
Source: Welsh Government, 2017

**Chart 16: Proportion of exclusions in Welsh schools which are related to drugs and alcohol, by type of exclusion**

## Children and young people aged up to 24

### Hospital admissions related to alcohol amongst children and young people (aged up to 24)

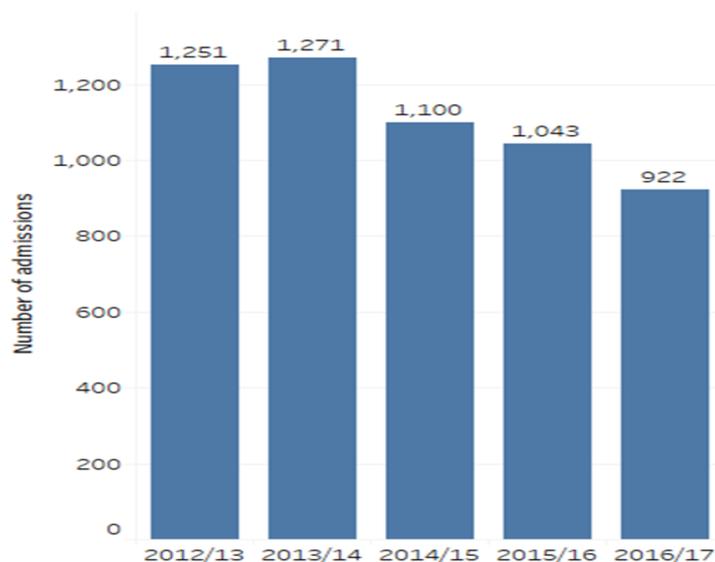
There were 922 admissions involving young people aged under-25 with an alcohol specific condition in 2016-17, a fall of 11.6 per cent compared with 2015-16. There were 177 admissions with an alcohol specific code in the primary position (58.8 per cent male) accounting for 19.2 per cent of all alcohol admissions for under-25s. The 922 admissions involved 837 individuals. Chart 17 shows the number of admissions for alcohol specific conditions amongst under-25s resident in Wales in 2016-17 by gender, age and diagnostic position of an alcohol specific diagnosis.



Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 17: Hospital admissions for alcohol specific conditions in Welsh residents aged under 25 years, by diagnostic position 2016-17.**

Chart 18 shows the number of admissions involving young people aged 25 or under with an alcohol specific condition by year. As can be seen from this Chart, admissions involving this age cohort have been declining over both one year and five years, by 11.6 per cent and 26.3 per cent respectively, to 922 in 2016-17. This age cohort accounted for 6.6 per cent of admissions to hospital with an alcohol specific condition in 2016-17.

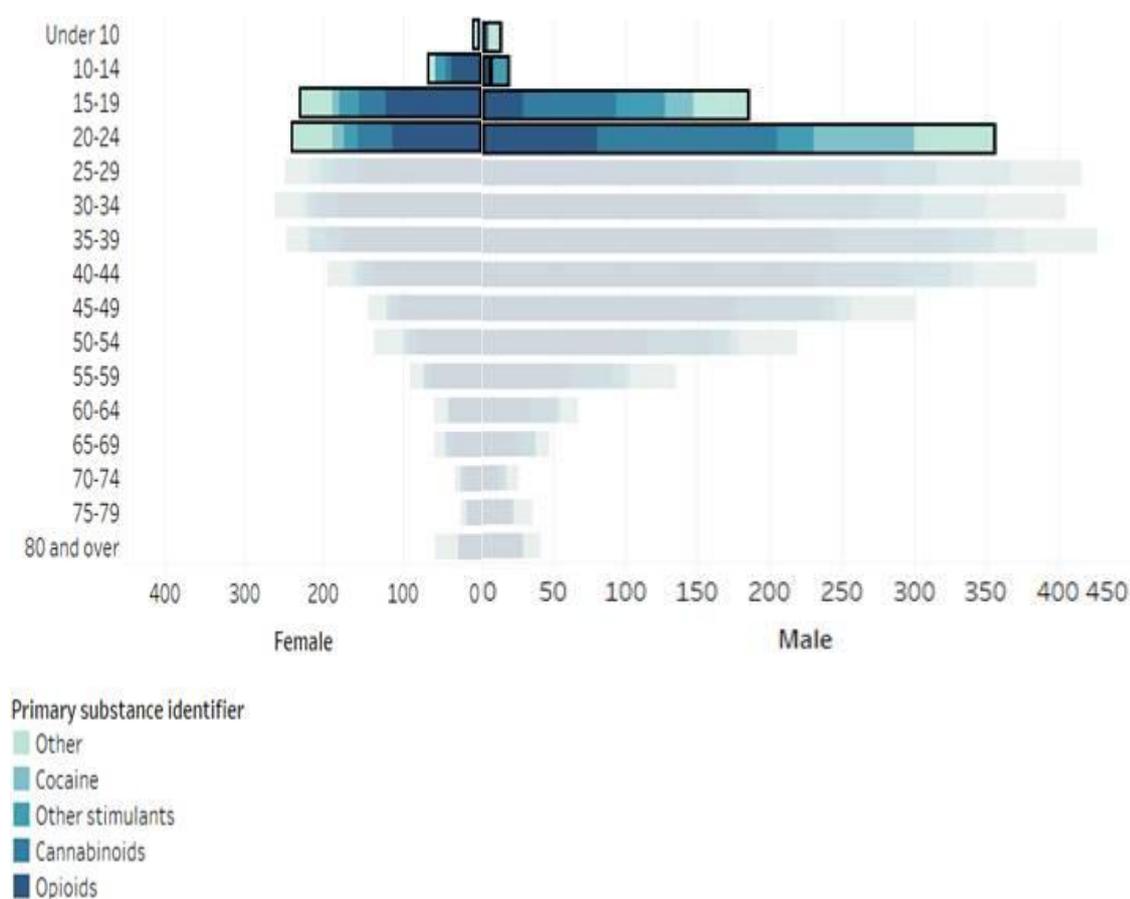


Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 18: Admissions involving young people under 25 resident in Wales with an alcohol specific condition, by year 2012-13 to 2016-17**

## Hospital admissions for poisoning by illicit drugs in children and young people (aged up to 24)

There were 1,296 admissions of young people aged under-25 for conditions related to illicit drugs in 2016-17, a decrease of 1.4 per cent on 2015-16. These admissions involved 1,107 individuals, an increase of 2.2 per cent on the previous year. Individuals aged up to 24 made up 19.9 per cent of all those admitted to hospital in 2016-17 for illicit drugs. This age cohort divided almost evenly by gender, with 51 per cent male per cent of those admitted male and 49 per cent female, in line with previous years. Chart 19 shows the number of young people aged under 25 resident in Wales and admitted to hospital following use of illicit drugs in 2016-17.

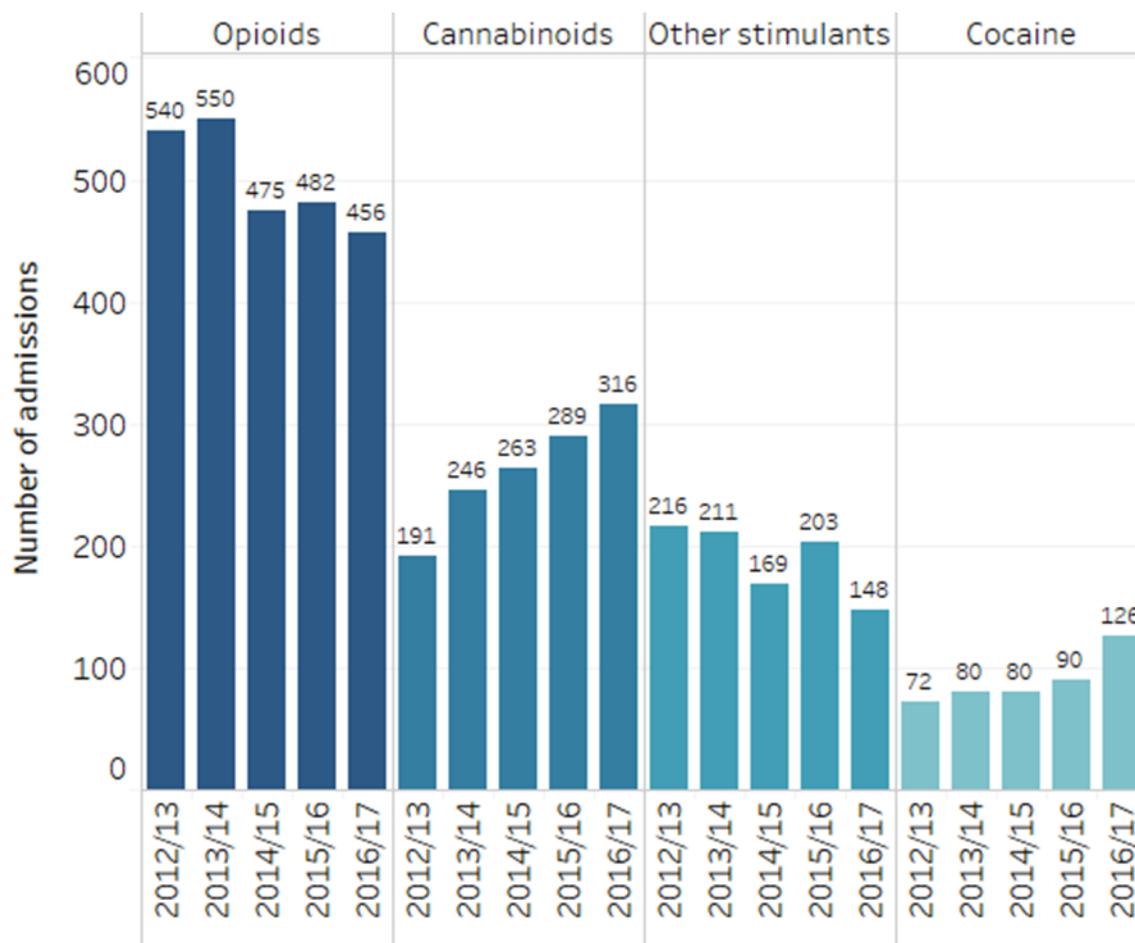


Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 19: Hospital admissions for conditions related to illicit drugs amongst young people aged up to 24, Welsh resident by gender, age and primary substance used, 2016-17<sup>12</sup>**

Chart 20 shows the number of illicit drugs related admissions by substance over the past five years for those aged under 25. Admissions for opioid use have remained relatively stable following a sharp decline in 2014-15, however, admissions for cannabinoids and cocaine continue to rise with an increase over the last five years of 65.5 per cent and 75 per cent respectively.

<sup>12</sup> Where an individual was admitted more than once, the first admission was used. Where more than one substance was recorded, they were assigned in the order opioid-cocaine-other stimulants – cannabinoids – other

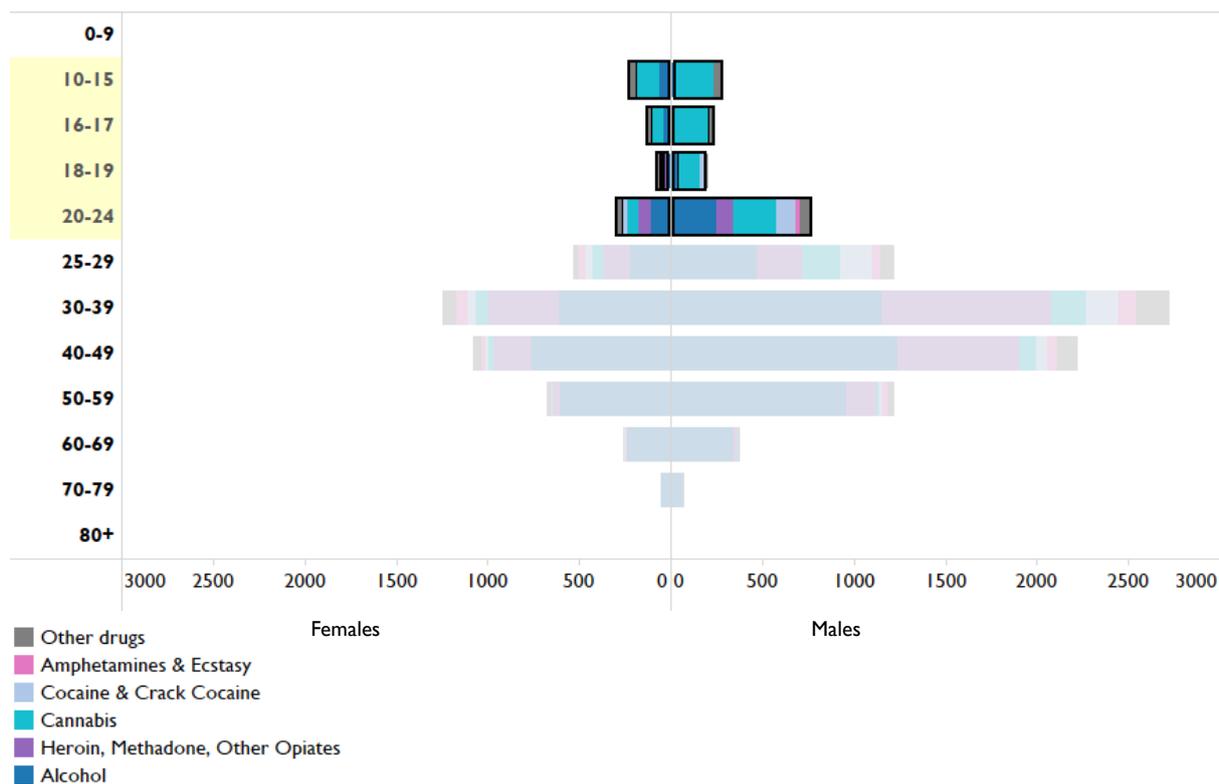


Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 20: Admissions to hospital involving young people under 25 resident in Wales with a condition related to illicit drugs, year and primary substance used.**

### **Assessments in specialist substance misuse treatment services amongst young people (aged up to 24)**

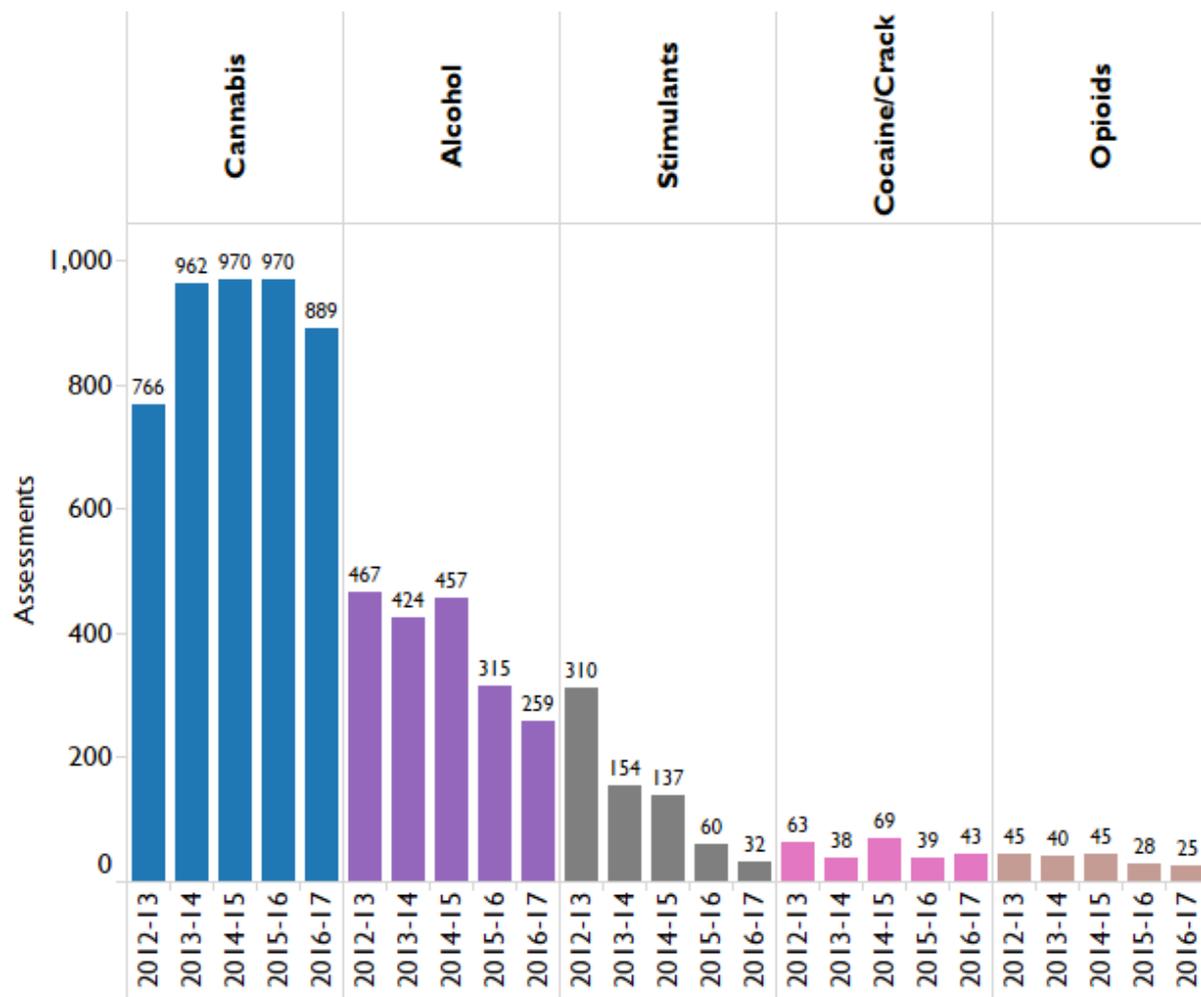
In 2016-17 there were 2,730 assessments of young people aged under 25, a reduction of 12.0 per cent from 2015-16. Chart 21 shows figures for this age group by gender, age and primary substance reported as problematic.



Source: Welsh National Database for Substance Misuse, 2017

**Chart 21: Young people under 25 assessed by substance misuse services in Wales, by gender, age band and primary substance reported as problematic, 2016-17. Where an individual was assessed more than once, details were taken from the first assessment**

Chart 22 shows the number of assessments by year and by primary substance reported at assessment in this age group. Despite a fall of 7.8 per cent compared with the previous year, cannabis/cannabinoids remain the substance most frequently reported as problematic at assessments of young people. The number of assessments at which cannabis was recorded as the main substance remains higher in 2016-17 than for 2012-13 despite the recent decrease. In all other substance types, the number of assessments in young people has declines over the past five years, most notably for primary problematic alcohol use and stimulant use.



**Primary Substance (group)**

- Cannabis
- Alcohol
- Stimulants
- Cocaine/Crack
- Opioids

Source: Welsh National Database for Substance Misuse, 2017

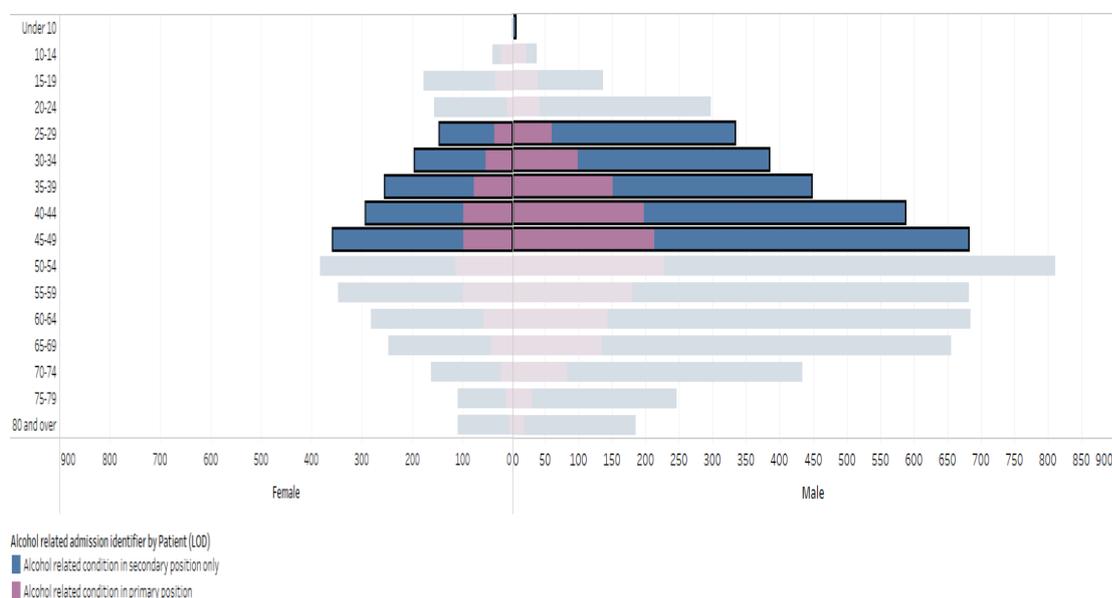
**Chart 22: Substance misuse assessments carried with young people under 25, by year and primary problematic substance reported 2012-13 to 2016-17, Wales**

## Working age adults (aged 25 to 49 years)

### Hospital admissions for alcohol specific conditions, working age adults

There were a total of 5,137 hospital admissions for alcohol specific conditions amongst this age group in 2016-17, representing a decrease of 10.1 per cent on the previous year and 22.9 per cent over the last decade. 1,366 (26.6 per cent) of these admissions contained an alcohol specific code in the primary position. A total of 3,469 individual patients were admitted in 2016-17, of which 1,532 admissions (44.2 per cent) contained an alcohol specific code in the primary position.

The majority of patients, 64 per cent, admitted for alcohol specific conditions in this age group were male, a proportion that has been stable over the past five years. Working age adults represented 37 per cent of all individuals admitted in 2016-17, down 1.2 per cent on the previous year. Chart 23 shows individuals of working age admitted to hospital in 2016-17 with an alcohol specific condition by gender, age and diagnostic position of an alcohol related condition.

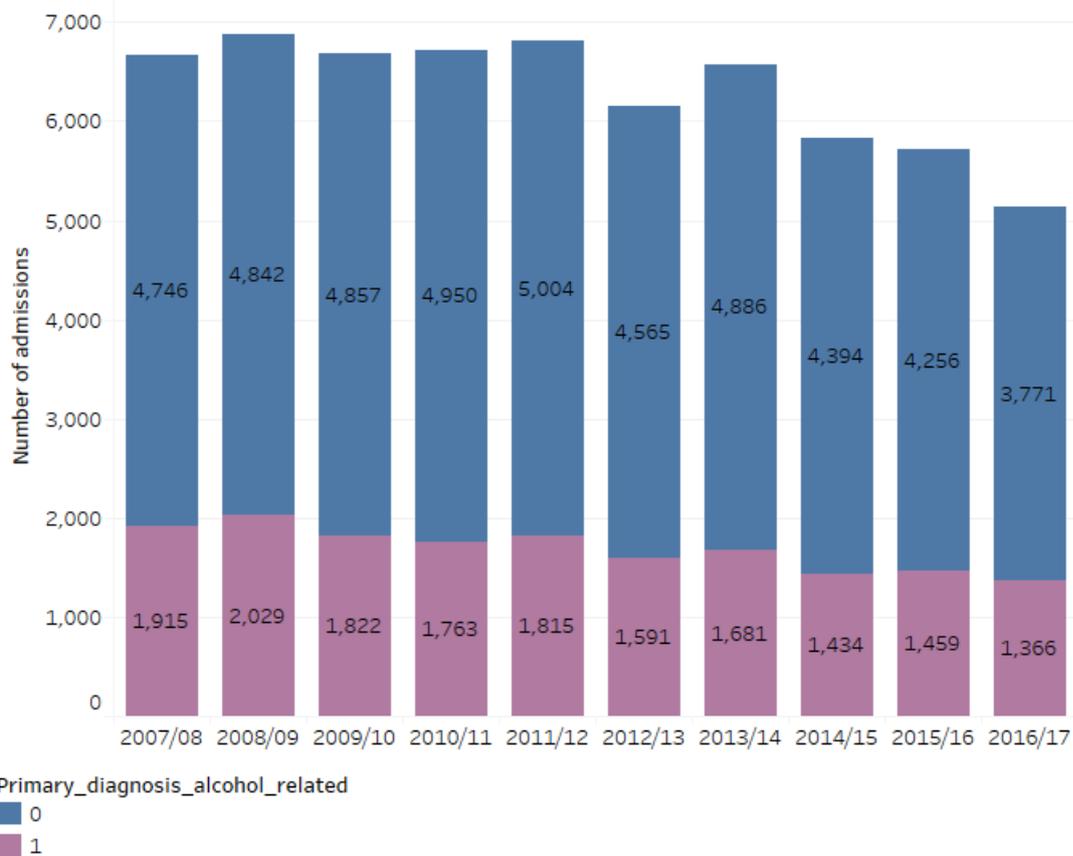


Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 23: Working age people aged 25-49 resident in Wales admitted to hospital with an alcohol specific condition, by gender, age and diagnostic position of alcohol related condition, 2016-17<sup>13</sup>.**

Chart 24 shows the number of admissions involving those of working age including an alcohol specific condition.

<sup>13</sup> Where an individual was admitted more than once in the year, the diagnostic position of first admission was included



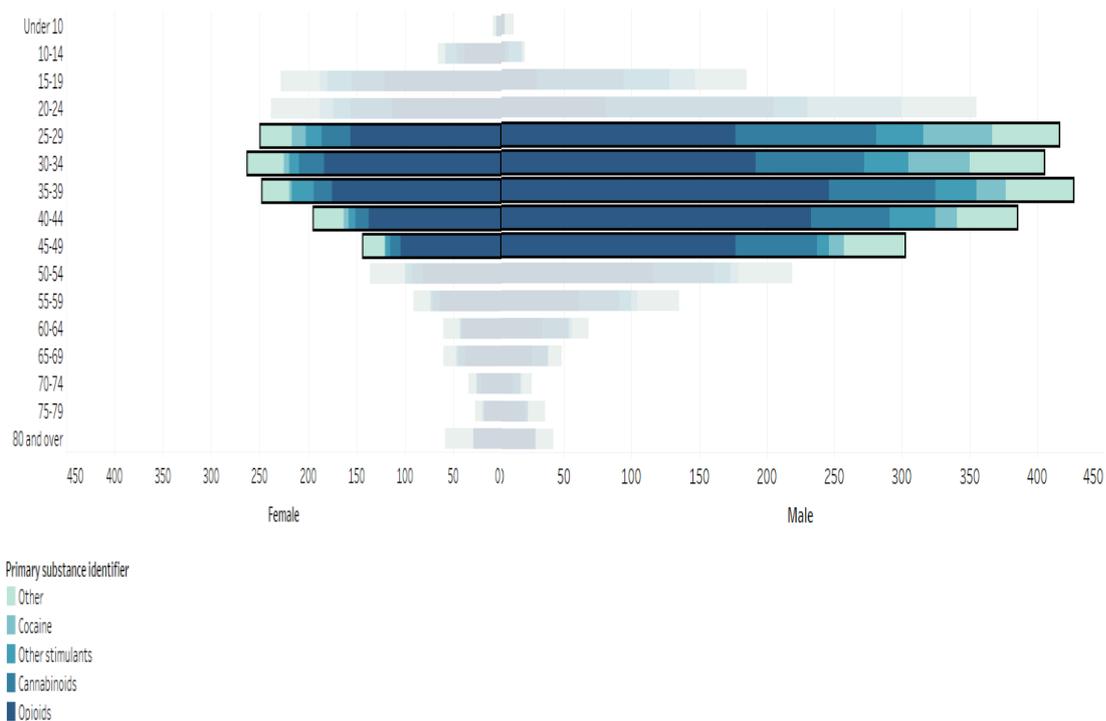
Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 24: Admissions involving working aged people aged 25-49 resident in Wales with an alcohol specific condition, by year 2007-18 to 2016-17**

### Hospital admissions for poisoning by illicit drugs in working aged people (25-49)

There were 4,019 admissions related to the use of illicit drugs for this age cohort, relating to 2,999 individuals. These numbers represented an increase of 6.6 per cent and 6.2 per cent respectively when compared with 2016-17.

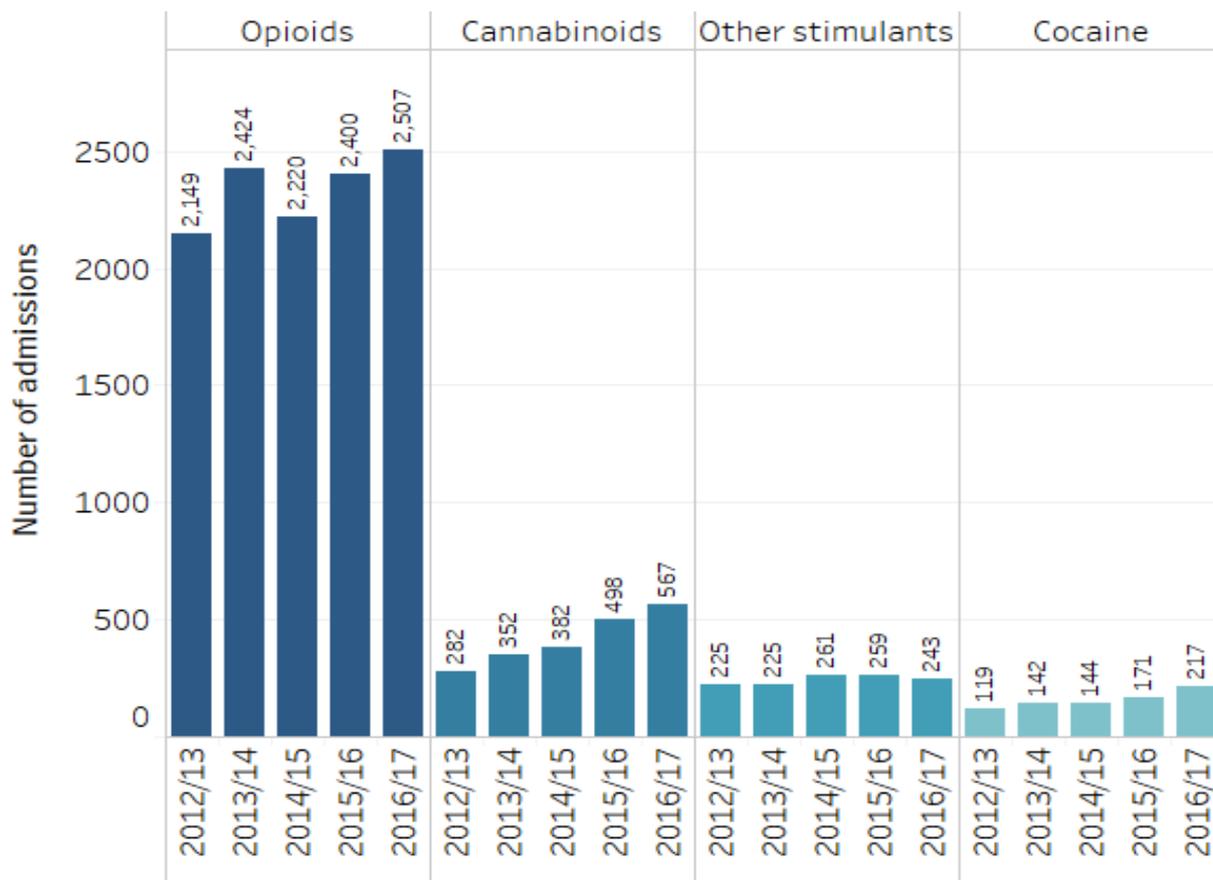
Individuals aged 25-49 made up 61.4 per cent of all those admitted for illicit drug related conditions in 2016-17, an increase of 1.9 percentage points on the previous year. The gender split in this age cohort was substantially different to that found amongst younger people, with men making up 63.9 per cent of those admitted in 2016-17. This proportion has risen slightly year on year every year from 58.9 per cent in 2011-12. Within this age cohort, 30-39 was the age band in which the largest proportion of individual admissions was recorded, with the 674 individuals. Chart 25 shows the number of working aged individuals resident in Wales and admitted to hospital following use of illicit drugs in 2016-17.



Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 25: Working age people aged 25-49 resident in Wales admitted to hospital with a condition related to illicit drugs, by gender, age and primary substance used, 2016-17.**

Chart 26 shows the number of illicit drug related admissions by substance over the past five years for those aged 25-49. As indicated, the number of admissions for opioids has risen over the past three years and by 16.7 per cent in the last five years. In addition, admissions for cannabinoids have doubled and cocaine admissions have increased by 82.4 per cent over this period. Admissions for other stimulants have remained relatively stable.

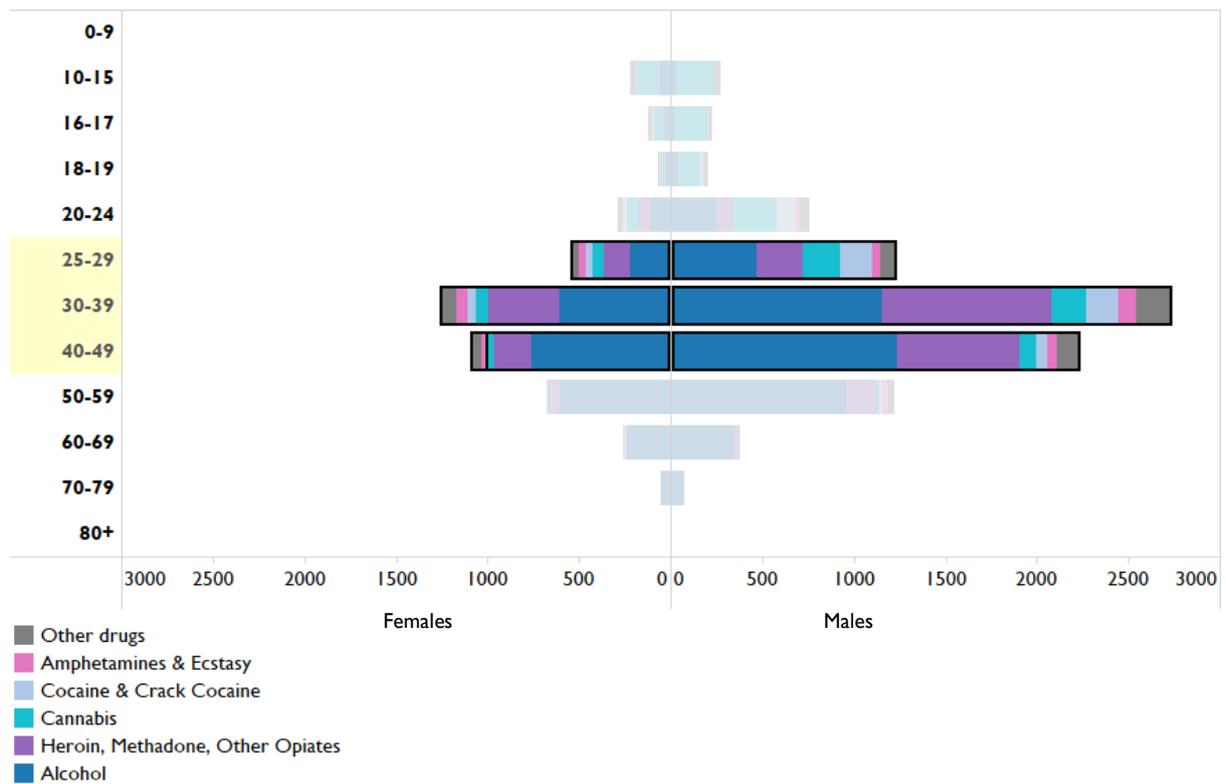


Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 26: Admissions to hospital involving working age people 25-49, resident in Wales with a condition related to illicit drugs, year and primary substance used.**

### Assessment by substance misuse treatment services, working age adults (25-49 years)

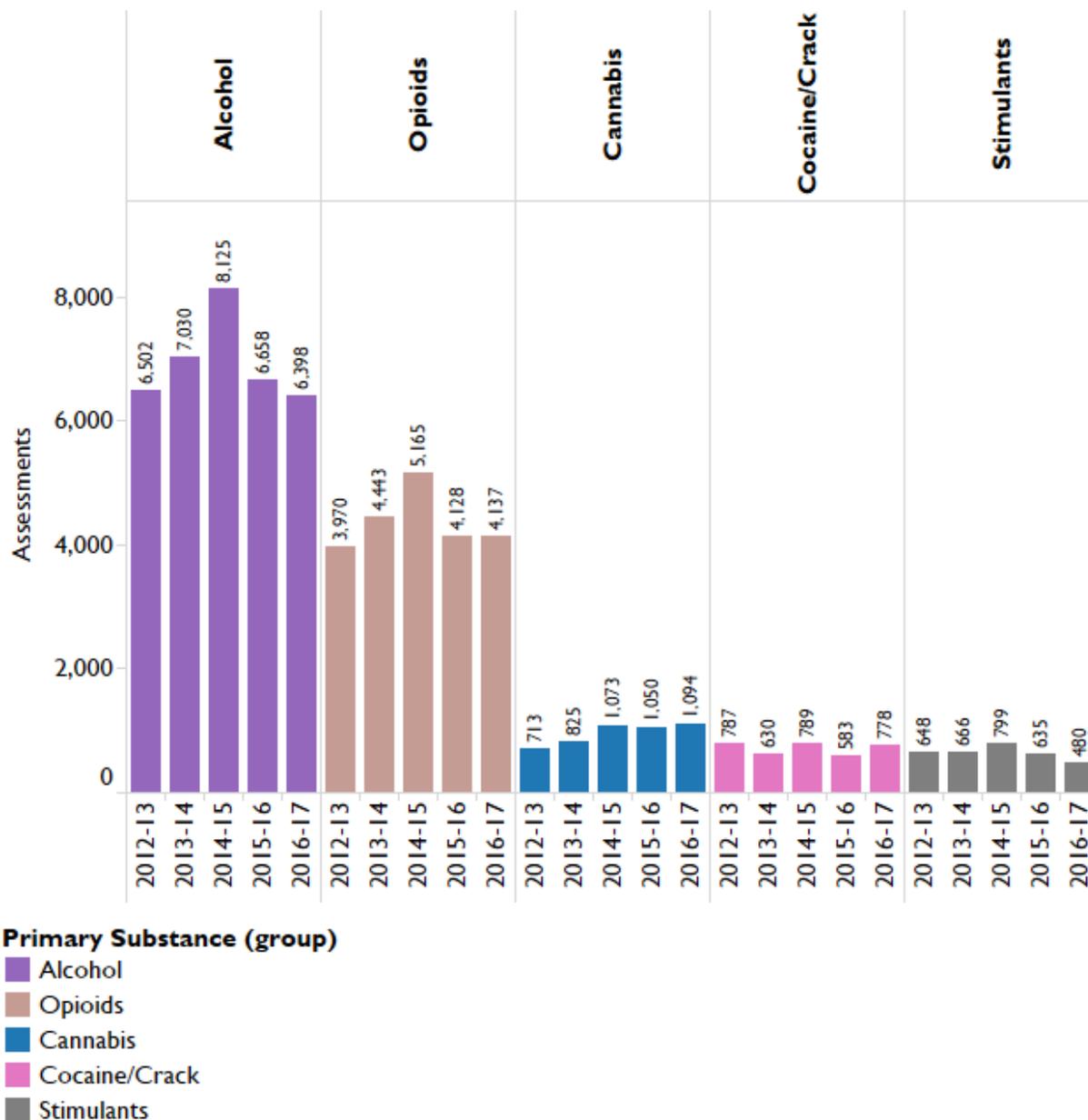
There were 12,026 assessments of individuals aged 25-49 in 2016-17, a reduction of 17.3 per cent from 2015-16. The assessments involved 9,256 individuals, representing 65.2 per cent of all individuals assessed in 2016-17. 33.3 per cent were women. The 30-34 and 35-39 age bands contained the most individuals across all age bands, with 2,107 and 2,188 individuals respectively. Chart 27 shows individuals assessed by substance misuse services in Wales in 2016-17 by age, gender and primary substance type.



Source: Welsh National Database for Substance Misuse, 2017

**Chart 27: Working aged people 25-49 assessed by substance misuse services in Wales, by gender, age band and primary substance reported as problematic, 2016-17. Where an individual was assessed more than once, details were taken from the first assessment**

Chart 28 shows the number of assessments carried out with those aged 25-49 in Wales by year and primary substance type.



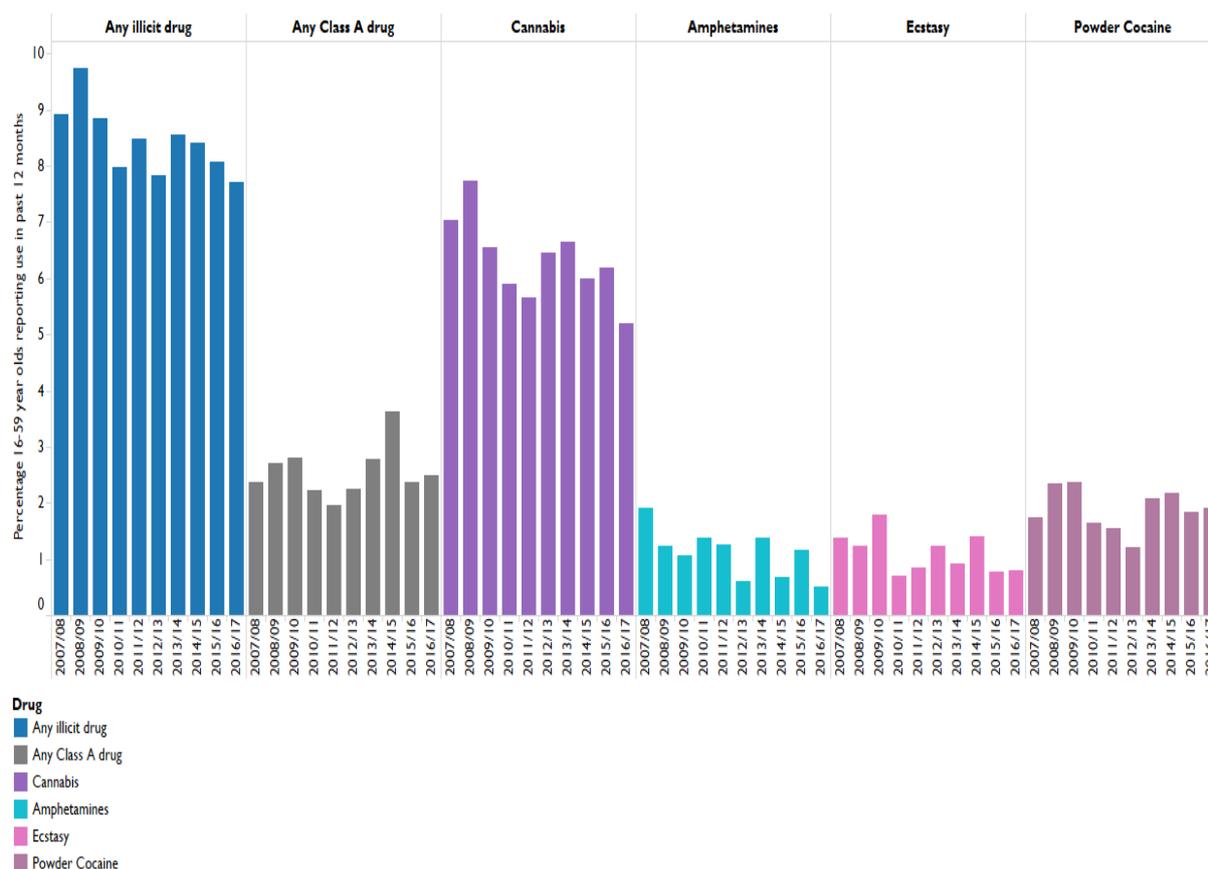
Source: Welsh National Database for Substance Misuse, 2017

**Chart 28: Substance misuse assessments carried with working aged adults 25-49, by year and primary substance reported as problematic, Wales 2012-13 to 2016-17**

Alcohol was the most frequently reported presenting substance reported at assessment by this age group, with 5,943 assessments. This represents a reduction of 3.2 per cent compared with 2015-16. Substantial increases were seen in assessments at which crack/cocaine was reported as the primary substance (39.0 per cent) and other drugs (38.4 per cent). The number of assessments at which opiates was recorded as the primary substance remained relatively steady, with a rise of 0.2 per cent from 2015-16.

## Self-reported use of illicit drugs in the past year and attitudes towards drugs and alcohol: adults aged 16-59 years

The Crime Survey for England and Wales (CSEW) is carried out annually. Whilst its principal purpose is to survey a representative sample of the population on their experiences of crime, it also includes a number of questions relating to individuals' own use of, and attitudes towards, illicit drugs. Chart 29 shows the percentage of adults in Wales self-reporting use of selected illicit substances.



Source: Office for National Statistics, 2017

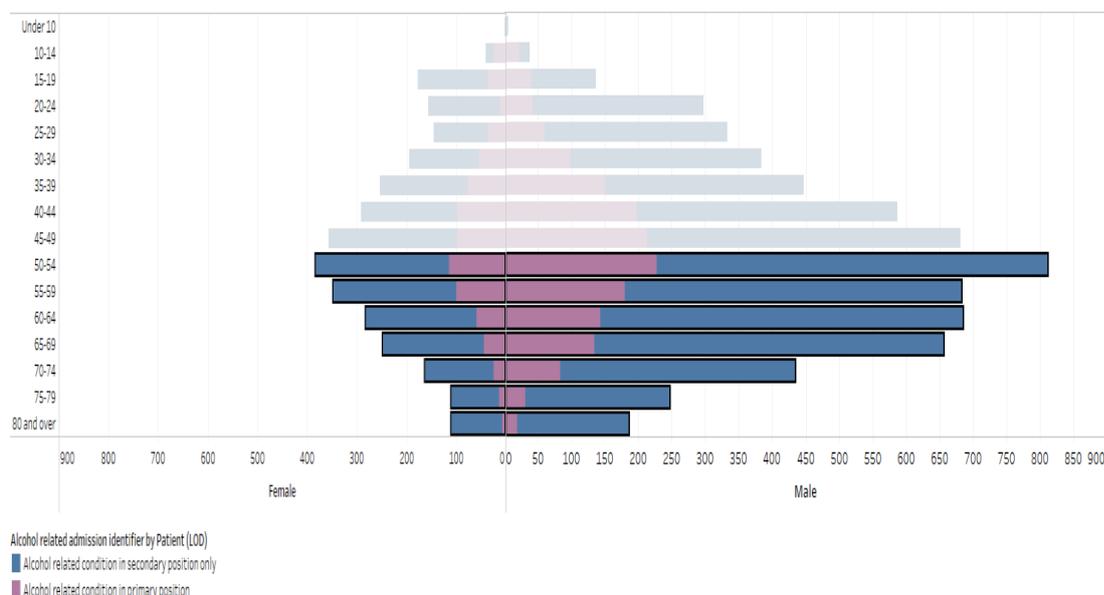
**Chart 29: Percentage of adults in Wales aged 16-59 reporting use in past 12 months of selected illicit drugs, Crime Survey for England and Wales 2007-08 to 2016-17**

Data from the CSEW for 2016-17 suggests that, following a rise between 2012-13 and 2013-14, use of any illicit drug has decrease amongst adults in Wales with 7.7 per cent reporting use in the last year, down from 8.1 per cent in 2015-16. However, self-report use of any Class A drug has increased slightly to 2.5 per cent over the same period. Self-report use of cannabis has decreased to 5.2 per cent which does not concur with evidence presented within this report of increases in hospital admissions and assessments for cannabis and/or cannabinoids at every age group. Self-report use of Ecstasy remains stable, reported by 0.8 per cent of adults, whilst use of cocaine has increased slightly to 1.9 per cent of adults reporting use in the previous 12 months, up from 1.8 in the previous year.

## Older adults (aged 50 years and above)

### Hospital admissions for alcohol specific conditions, older adults (50+ years)

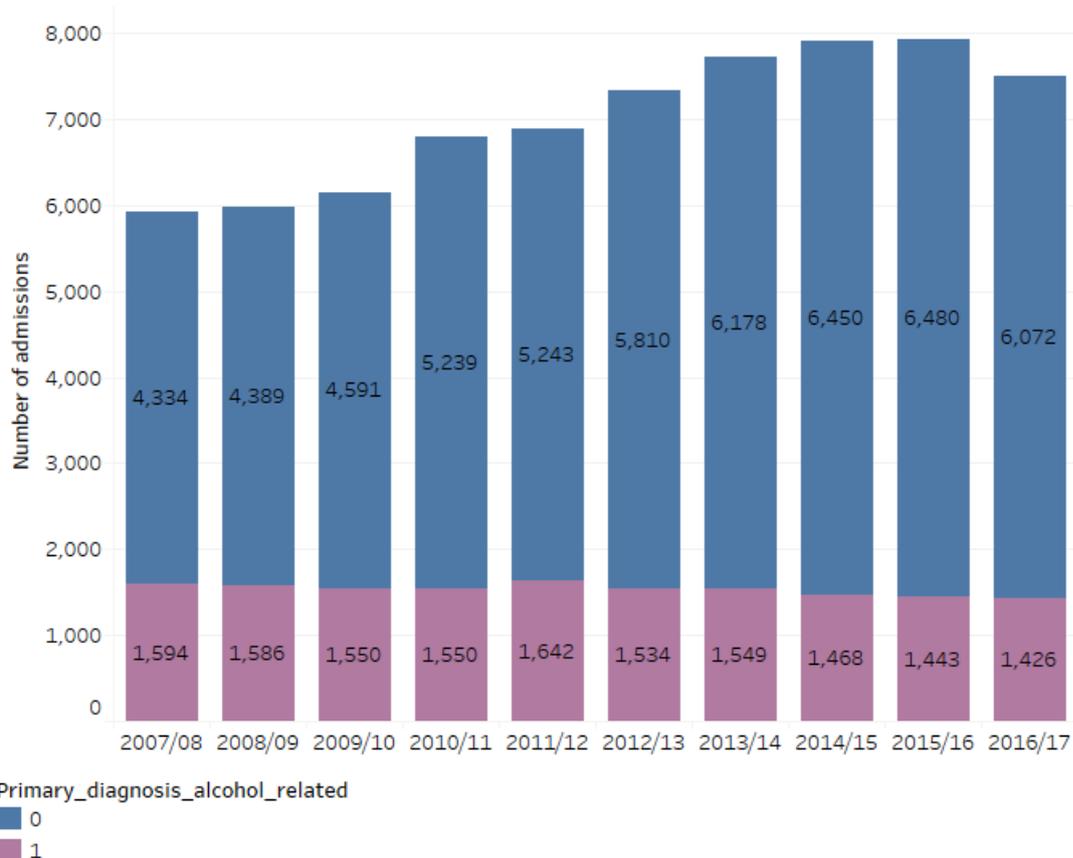
There were 7,498 admissions in 2016-17 where the patient was 50 or older, a decrease of 5.4 per cent on the previous year. Of these admissions, 1,426 (19 per cent) were for alcohol specific conditions in the primary position. There were a total of 5,102 individual patients admitted, of which 1,183 (23.2 per cent) were for conditions in the primary position. The proportion of males admitted in this age cohort was 68.5 per cent, comparable to previous years. The 50 and over age cohort made up 55.3 per cent of all those admitted in 2016-17, broadly similar to recent years but considerably higher than in 2011-12, when this age cohort made up 44.6 per cent of all those admitted with an alcohol specific condition. The five-year age band with the greatest number of individuals admitted falls within this cohort, with those aged 50-54 making up 12.4 per cent, or approximately one in eight of all admissions in 2016-17. Chart 30 shows the number of individuals aged 50+ admitted to hospital with an alcohol specific condition any diagnostic position in 2016-17 by gender, age and diagnostic position.



Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 30: Older people aged 50+ resident in Wales admitted to hospital with an alcohol specific condition, by gender, age and diagnostic position of alcohol related condition, 2015-16.**

Chart 31 shows the number of admissions involving those of aged 50 years or more including an alcohol specific condition. Admissions in this age cohort were lower than those recorded in the previous three years but are 26.5 per cent higher than comparable admission in 2007-08.

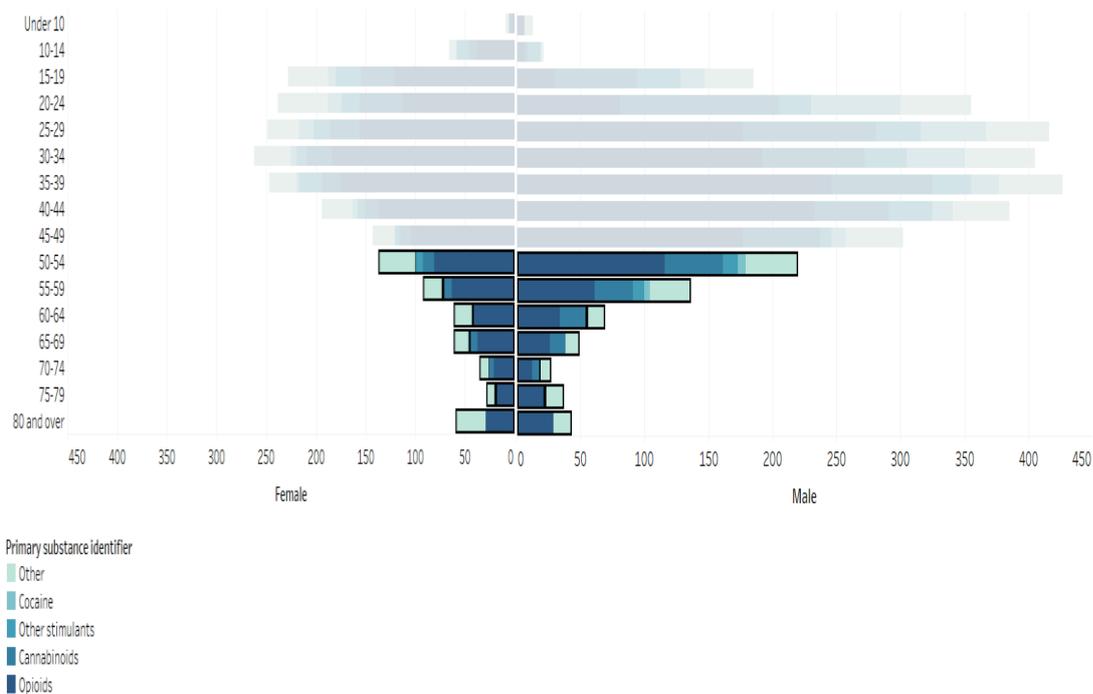


Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 31: Admissions involving older people aged 50+ resident in Wales with an alcohol specific condition, by year and diagnostic position of alcohol related condition**

### Hospital admissions for poisoning with illicit drugs in older adults (50+ years)

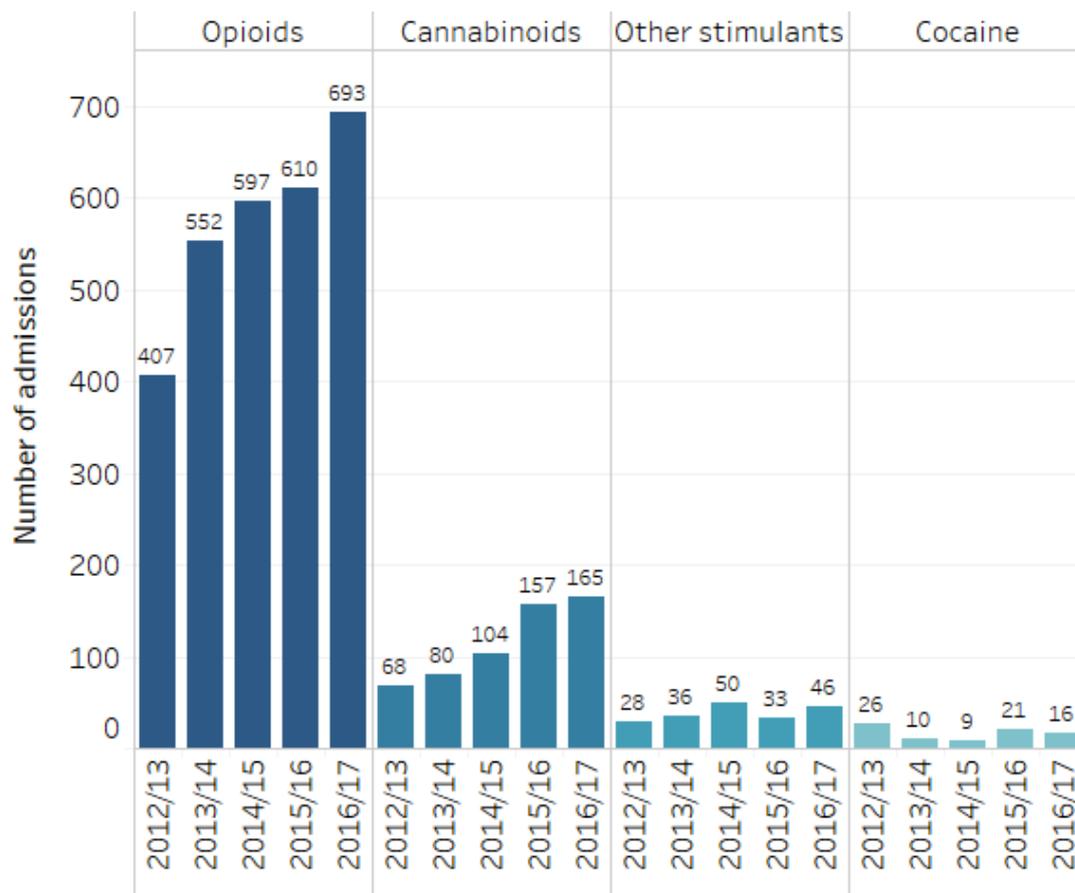
There were 1,228 illicit drugs related admissions involving individuals 50 years or older, a rise of 16.3 per cent on 2015-16. These admissions related to 1,037 individuals, a rise of 16.7 per cent on the 889 recorded for the previous year. 55.2 per cent of patients were male. Individuals aged 50 and over made up 18.8 per cent of all those admitted in 2016-17 following illicit drug use, a marginal decrease of 0.5 per cent from 2015-16. Within this broad age cohort, the 50-54 age category reported the largest number of individuals, representing 6.9 per cent of all individuals admitted across all age categories. Chart 32 shows the number of older individuals resident in Wales and admitted to hospital following use of illicit drugs in 2016-17.



Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 32: Older people aged 50+ resident in Wales admitted to hospital with a condition related to illicit drugs, by gender, age and primary substance used, 2015-16.**

Chart 33 shows the number of illicit drugs related admissions by substance over the past five years for those aged 50+. Opioids were the drug most frequently reported with 693 admissions. This represented a rise of 13.6 per cent on 2016-17 and a continuation of the trend observed since 2012-13; compared with 2012-13, opioid related admissions have risen 70.3 per cent amongst this age cohort. There were considerably fewer admissions involving other illicit drugs within this age category; however, the rise in cannabinoid related admissions is notable, increasing more than two-fold since 2012-13. Admissions following use of cocaine and other stimulants amongst this age cohort remain low and do not show any clear trends.

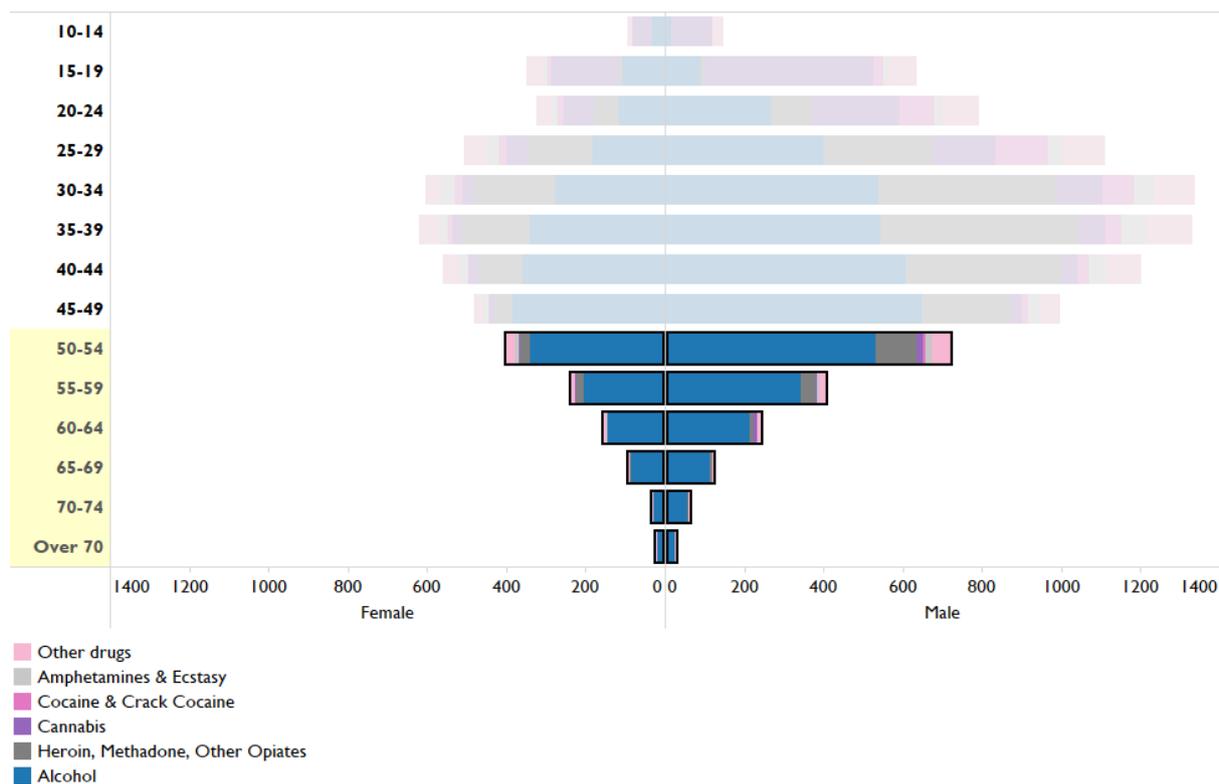


Source: Substance Misuse Programme / NHS Wales Informatics Service, 2017

**Chart 33: Admissions to hospital involving older people aged 50+ resident in Wales with a condition related to illicit drugs, year and primary substance used.**

### **Assessment by substance misuse treatment services, older adults (50+ years)**

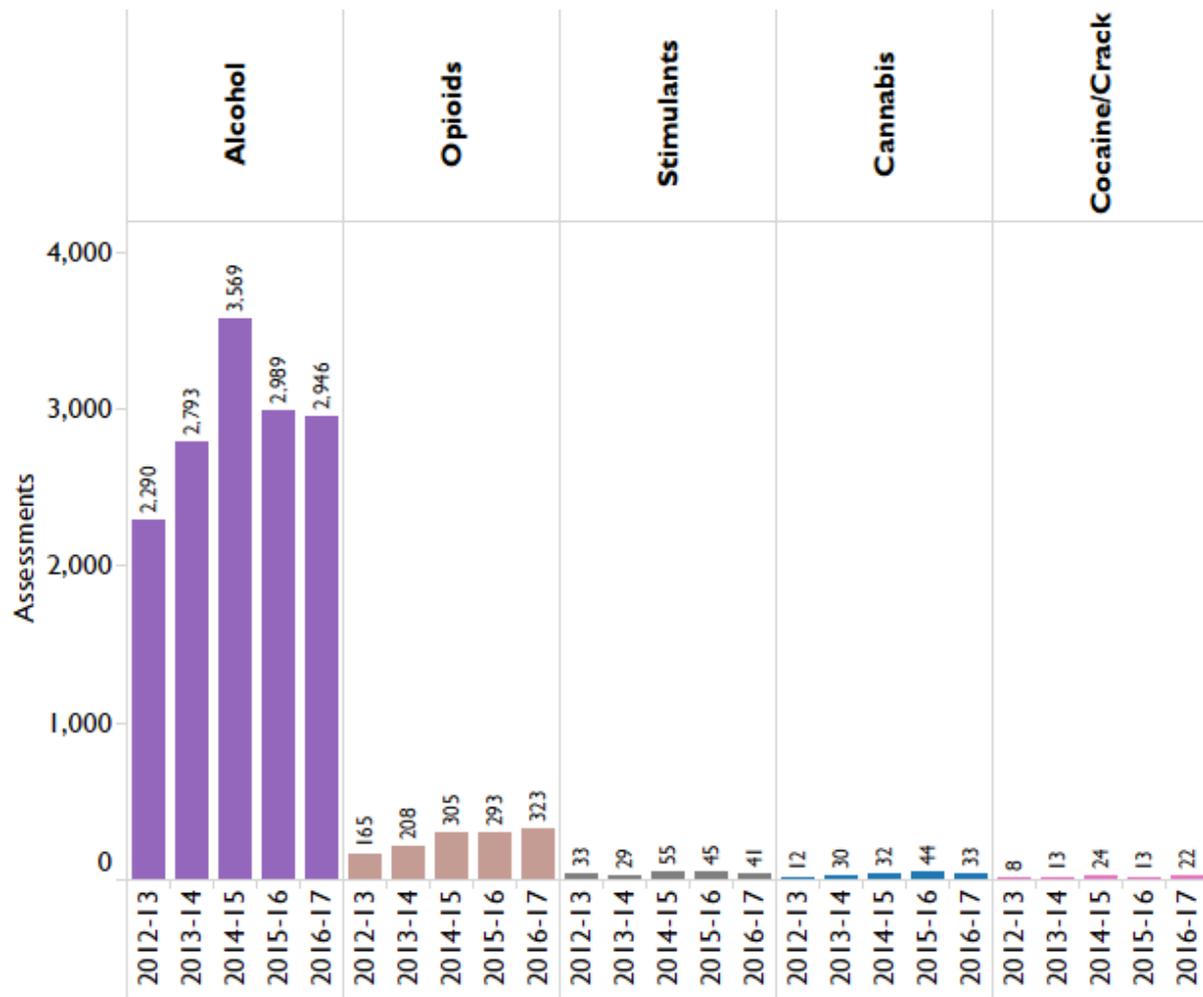
There were 3,446 assessments of individuals aged 50 and over recorded on the Welsh National Database for Substance Misuse in 2016-17, involving 2,158 men and 1,288 women. This was an overall fall of 3.8 per cent on 2015-16. A substantial majority of those assessed within this age cohort, 72.5 per cent, were aged between 50 and 59. Chart 34 shows individuals aged 50 and over assessed by substance misuse services in Wales by age, gender and main problematic substance reported.



Source: Welsh National Database for Substance Misuse, 2017

**Chart 34: Older people 50+ assessed by substance misuse services in Wales, by gender, age band and primary substance reported as problematic, 2016-17.**

Chart 35 shows the number of assessments carried out with those aged 50 or over in Wales in 2016-17 by year and main substance reported as problematic. Alcohol was the most frequently presenting problematic substance with 2,946 assessments, a decrease of 1.4 per cent on the previous year but 28.7 per cent higher than that recorded in 2012-13. This compares with 323 assessments where opioids were reported as the main substance of use, an increase of 10 per cent from 2015-16. There were 41 assessments reporting stimulants, 33 reporting cannabis and 22 reporting cocaine or crack.



**Primary Substance (group)**

- Alcohol
- Opioids
- Stimulants
- Cannabis
- Cocaine/Crack

Source: Welsh National Database for Substance Misuse, 2017

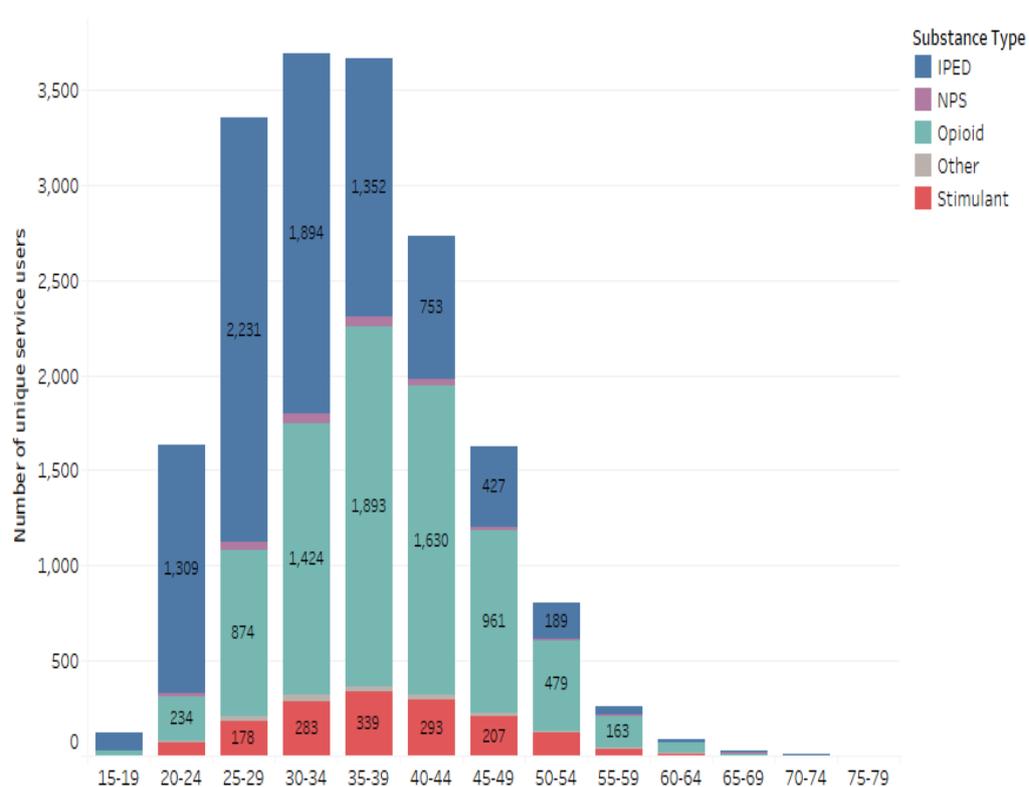
**Chart 35: Substance misuse assessments carried out with older adults aged 50+, by year and primary problematic substance reported, Wales 2012-13 to 2016-17**

## Injecting drug use: risk behaviours and blood borne viruses

### People who inject drug and access Needle and Syringe Programmes

In 2010 Public Health Wales, supported by Welsh Government, introduced the Harm Reduction Database (HRD) in all statutory and voluntary sector Needle and Syringe Programmes (NSPs; previously referred to as Needle Exchanges) across Wales. Since April 2014, pharmacy provision of injecting equipment has also been included. Details of how data is gathered through the HRD and the most recent HRD reports are available online.<sup>14</sup> The data presented in this report relates to individuals considered to be 'regular' users of NSPs in Wales: those accessing two or more times in the current year, and/or recorded as accessing across multiple years. Whilst injecting and problematic drug use frequently involves use of more than one substance, data in this report are presented by primary substance type.

In 2016-17 there were a total of 18,028 people who inject drugs (PWID) regularly accessing NSP services in Wales, that is accessing sterile injecting equipment at least twice per year. Chart 36 shows the number of in 2016-17 by age and primary substance of injecting.



Source: Harm Reduction Database Wales 2017

**Chart 36: People who inject drugs and regularly access Needle and Syringe Programme services in Wales 2016-17 by age quintile and primary drug type**

#### Young people aged up to 24

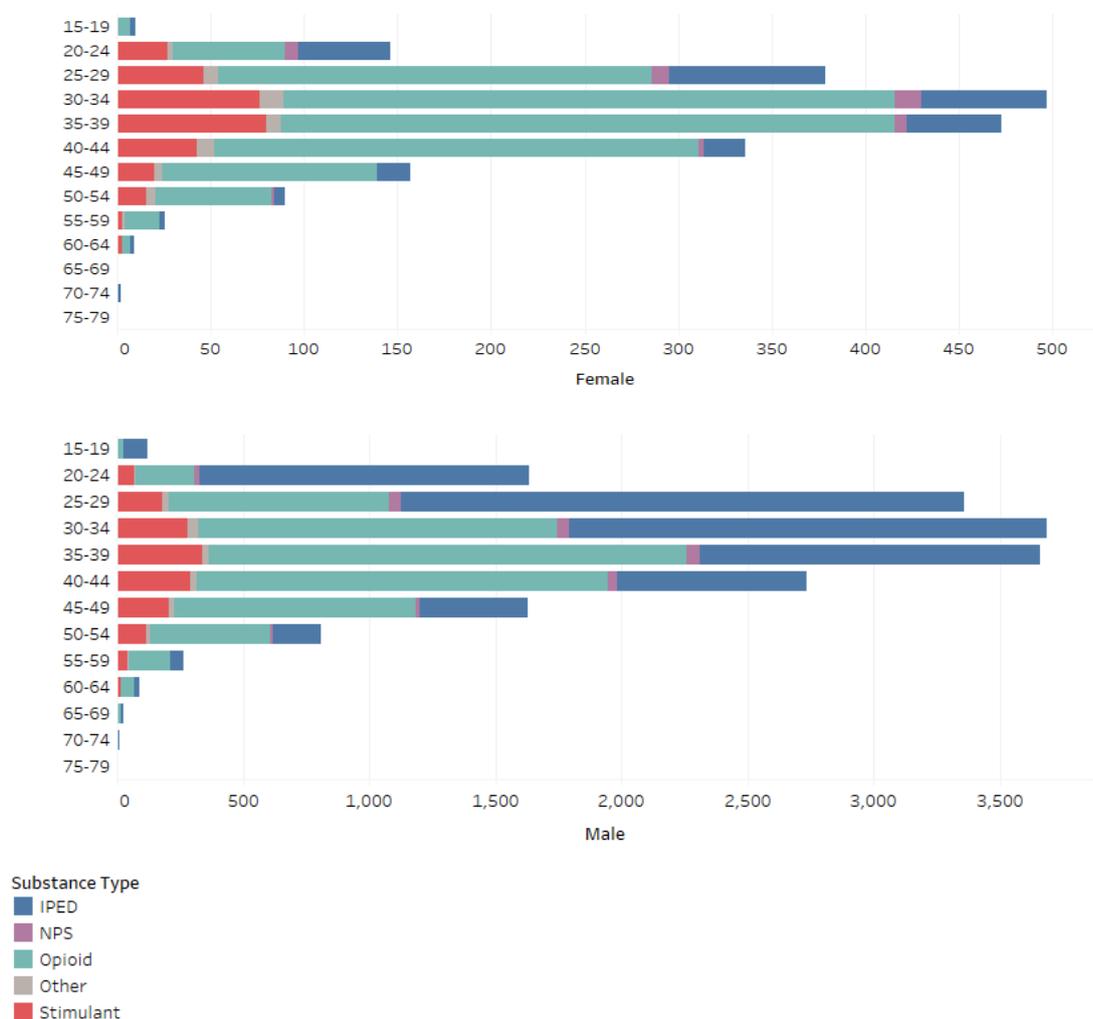
In terms of age cohort, young people represented 9.7 per cent (n=1757) of all regularly PWID. 92 per cent of under-25 PWID were male; a total of 1401 (79.7 per cent) reported image and performance enhancing drugs (IPEDs) as being their primary substance of use. Opioids were the

<sup>14</sup> See <http://www.wales.nhs.uk/sitesplus/888/page/72997> for further details about the Harm Reduction Database

second most frequently reported primary drug of use, with 260 individuals (14.8 per cent), followed by stimulants (69 individuals, 3.9 per cent). In addition to regular PWID, there were an additional 1094 young people who accessed sterile injecting equipment on a single occasion in 2016-17. Again, the majority 76.8 per cent, accessed NSP services reporting primary IPED use, and a further 182, 16.6 per cent, for primary opioid use.

### Working aged adults 25-49

Individual PWID aged between 25 and 49 made up the majority of those regularly accessing NSPs in Wales in 2016-17, with a total of 15,074 (83.6 per cent) of individuals. Of this total, 13,232 (87.8 per cent) were male. Unlike the younger age cohort, primary opioid use was most frequently cited as the primary drug injected with 6782 PWID (45 per cent) closely followed by reported primary IPED use, by 6657 individuals (44.2 per cent). Primary stimulant injecting was reported by 1300 regular PWID (8.6 per cent). The proportion of male to female PWID varied by primary drug type as shown in Chart XX



Source: Harm Reduction Database Wales, 2017

**Chart 37: Number of people of inject drugs, regularly accessing NSP services by gender, age band and primary substance of use, Wales, 2016-17**

In addition to regular attenders, an additional 5,720 individual PWID attended NSP services only once in 2016-17. Of these, the majority were primary IPED injectors 48.3 per cent (n=2760), 41.4 per cent primary opioid and 8 per cent primary stimulant injectors.

### **Older aged adult 50+**

There were a total of 1,197 PWID age 50 years or more regularly attending NSP services in 2016/17, representing 6.6 per cent of the total. In terms of primary drug injected profile, 705 (58.9 per cent) primary opioid injecting; 276 (23 per cent) reported primary IPED use, and 178 (14.9 per cent) reported primary stimulant injecting. The majority of these individuals, 88.9 per cent, (n=885) were male. In addition to regular NSP users, a further 547 individuals attended NSP services only once in 2016-17, made up of 293 (53.6 per cent) primary opioid injectors, 170 (331.1 per cent) primary IPED injectors and 62 (11.3 per cent) primary stimulant injectors.

## **Risk behaviours amongst people who inject drugs**

Injecting drug use, in particular where rates of sharing injecting equipment, both direct (the sharing of needles and syringes) and indirect (the sharing of other injecting-related equipment including spoons/cookers, filters, water), has a clear impact on the prevalence of blood borne viral infections, including hepatitis B, hepatitis C and HIV.

Evidence on direct and indirect sharing and blood borne virus (BBV) testing and prevalence is gathered by the Unlinked Anonymous Monitoring (UAM) Survey of People Who Inject Drugs (PWID), an annual survey of PWID accessing specialist drug services in England, Wales and Northern Ireland, co-ordinated by Public Health England<sup>15</sup>. In addition to requesting that participants complete an anonymous survey on risk behaviours, the UAM carries out a dry blood spot test for hepatitis and HIV. There were a total of 264 UAM survey participants in Wales in 2016.

### **Direct and indirect sharing**

A total of 17.5 per cent respondents reported direct sharing of injecting equipment (previously used needles and syringes) during the last 12 months, an increase of 4.5 percentage points on the previous year. Indirect sharing of injecting paraphernalia including filters and cookers in the last 28 days was reported by 27.2 per cent. Both practices represent a clear risk for transmission of blood borne viruses as well as bacterial infections. Symptoms of injecting site infection were reported by 36.7 per cent of UAM participants in Wales.

### **Prevalence of blood borne virus infection amongst people who inject drugs**

A total of 31 of 223 respondents in Wales provided dry blood spots which tested positive for hepatitis B (hepatitis B core antigen), a rate of 13.9 per cent up from 11 per cent in 2015. This proportion has been relatively stable since blood testing was first carried out as part of the UAM in 2011. The uptake of hepatitis B vaccination amongst UAM participants in Wales was reported as 74 per cent; again, this proportion has been very stable over the most recent five years.

The proportion with positive test results for hepatitis C antibodies was 52.7 per cent (139 or 264 respondents), though rates of positivity varied substantially by site from 41.4 per cent in Cardiff to 78 per cent in Swansea. Rates of hepatitis C have risen substantially in Wales over the last decade.

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<sup>15</sup> Further information and data from the Unlinked Anonymous Monitoring Survey is available at: <https://www.gov.uk/government/statistics/people-who-inject-drugs-hiv-and-viral-hepatitismonitoring#history>

However, with the advent of highly effective, available and tolerable treatment, along with the introduction of routine community opt-out testing, diagnosis and referral to treatment, it is expected that this trend will be reversed in the coming years.

The rate of HIV infection was 0.8 per cent amongst those from Wales participating in the UAM in 2016, a rate that has remained stable over time. In addition to data from the UAM, Public Health England reports the number of new diagnoses of HIV in the UK and constituent countries on an annual basis, along with the probable reason for exposure to the virus where known. In 2016 there were 141 new cases of HIV amongst Welsh residents and in 2015 a total of 206 new cases. However, fewer than ten of these new infections each year are believed to be as a result of injecting drug use<sup>16</sup>.

## **Estimates of problematic drug use in Wales**

Problem drug use (PDU) is defined by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) as “injecting drug use or long duration or regular use of opioids, cocaine and/or amphetamines [including amphetamine type substances]”<sup>17</sup>. Provisional headline figures for problem drug use in Wales, including populations not in contact with any services, suggest that the total number of problem drug users in 2015-16 was 49,370 (95% confidence interval (CI) 42,230 – 58,540). However, variation in the datasets on which these figures are based has been identified and therefore these figures are subject to revision and will be not specified by age group within this report. Details of the methods used to produce PDU figures for Wales is given in Appendix 7.

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<sup>16</sup> Public Health England (2015) HIV surveillance data in the UK by demographic characteristics and geographical region <https://www.gov.uk/government/statistics/hiv-annual-data-tables>

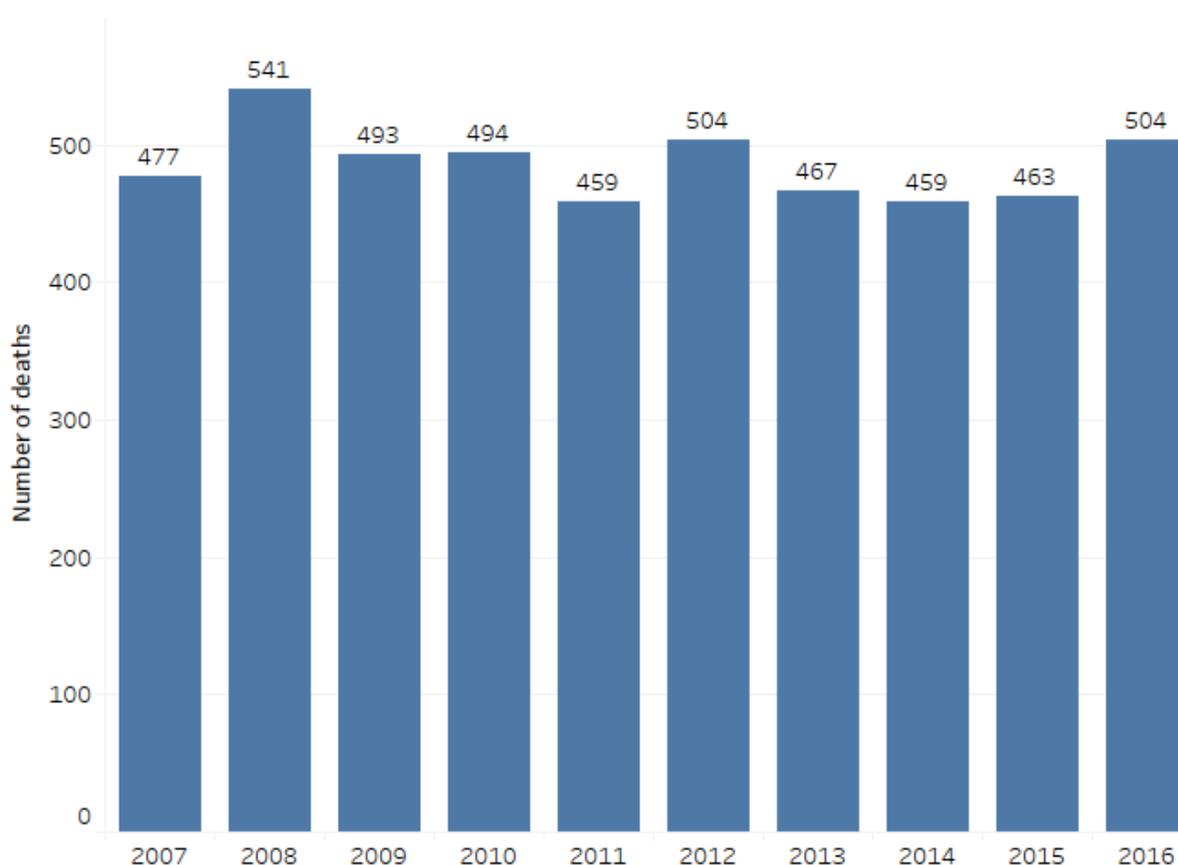
<sup>17</sup> EMCDDA (2004) Recommended Draft Technical Tools and Guidelines - Key Epidemiological Indicator: Prevalence of problem drug use. Lisbon: EMCDDA, 2004. Available at: <http://www.emcdda.europa.eu/stats07/PDU/methods>

## Alcohol related deaths

### Alcohol related deaths over time

As described in Appendix 2, there are two methods of calculating alcohol related deaths, one used by the Office for National Statistics (ONS) and the other using Alcohol Attributable Fractions (AAF). This subsection of alcohol related deaths describes deaths by year as counted by the ONS method. This allows for comparison with reports in previous years and with figures from other UK countries. Subsequent subsections will present more detailed figures produced by the NHS Wales Informatics Service (NWIS) using the AAF method.

Using the ONS definition, in 2016 there were 504 alcohol related deaths registered in Wales in 2016, an increase of 8.9 per cent on the previous year. There were 336 deaths of men registered in 2016 (66.7 per cent, up from 61.8 per cent of deaths in 2015) and 168 deaths of women (33.3 per cent, down from 38.2 per cent in 2015). Chart 38 shows the number of alcohol related deaths registered in Wales in each of the past ten years using the ONS method.



Source: Office for National Statistics, 2017

**Chart 38: Number of alcohol related deaths registered in year, ONS method, Wales, by year**

## Alcohol related deaths in 2014 by age, gender and Health Board area in Wales

As described above, this subsection of alcohol related deaths presents figures calculated using the AAF method of counting alcohol related deaths. Further details are available in Appendix 2.

The rolling average of deaths from alcohol specific causes over the most recent five years suggests that the number of deaths across Wales has fallen slightly over the previous few years. Whilst the overall standardised rate for alcohol specific mortality fell from 13 per 100,000 population in 2010-2012 to 12 per 100,000 population in 2014-16, the rate for men fell from 17.4 to 16.1 per 100,000 population while for women the reduction was from 9.1 to 8.1 per 100,000 population. These figures are shown in Chart 399.

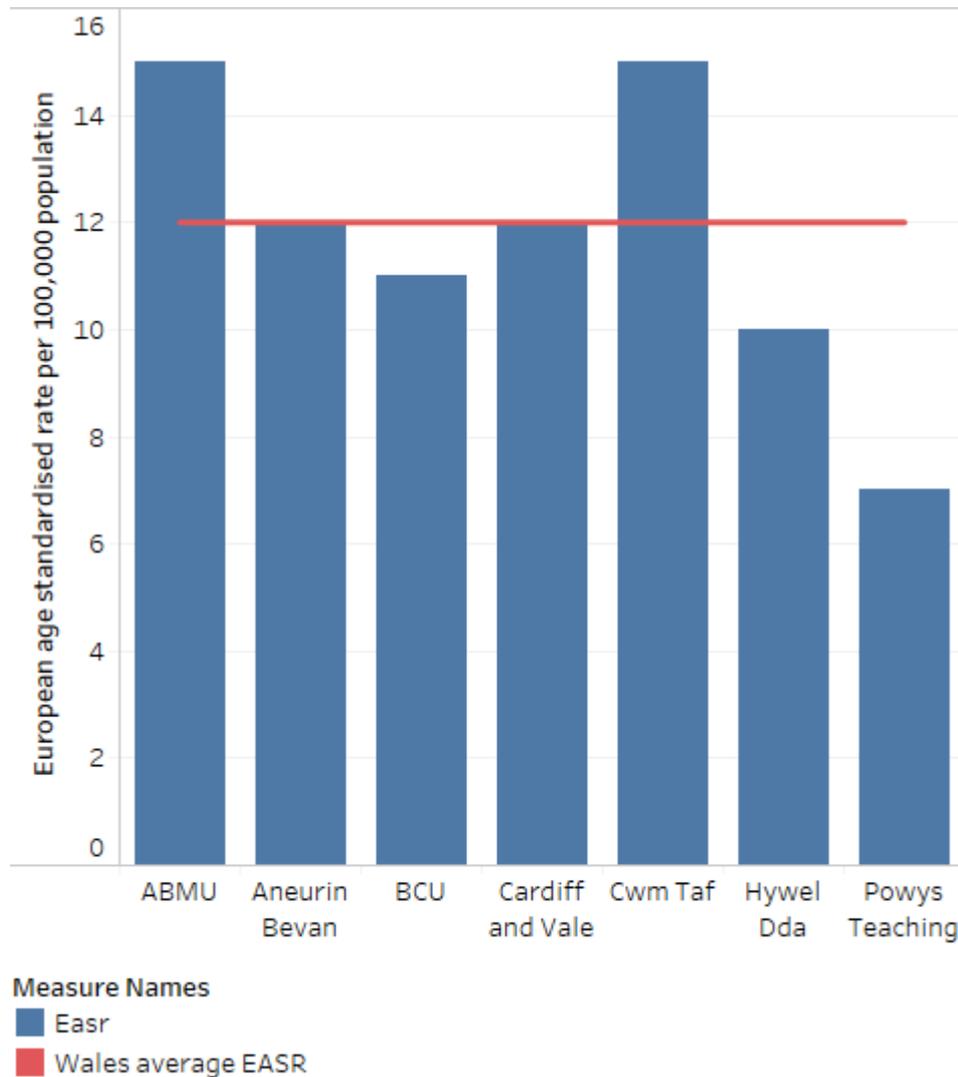


Source: Office for National Statistics and NWIS, 2017

**Chart 39: European age standardised rate of alcohol related deaths registered in year, AAF method, Wales, three year rolling averages, by year and gender**

There was considerable geographic variation in three year rolling averages of alcohol specific mortality, as can be seen in Chart 40. The highest rates are recorded in ABMU and Cwm Taf Health Board areas with 15 alcohol related deaths per 100,000 population. This was more than twice the

rate recorded in the Powys Teaching Health Board area, with an average of 7 alcohol related deaths per 100,000 over 2014-16.

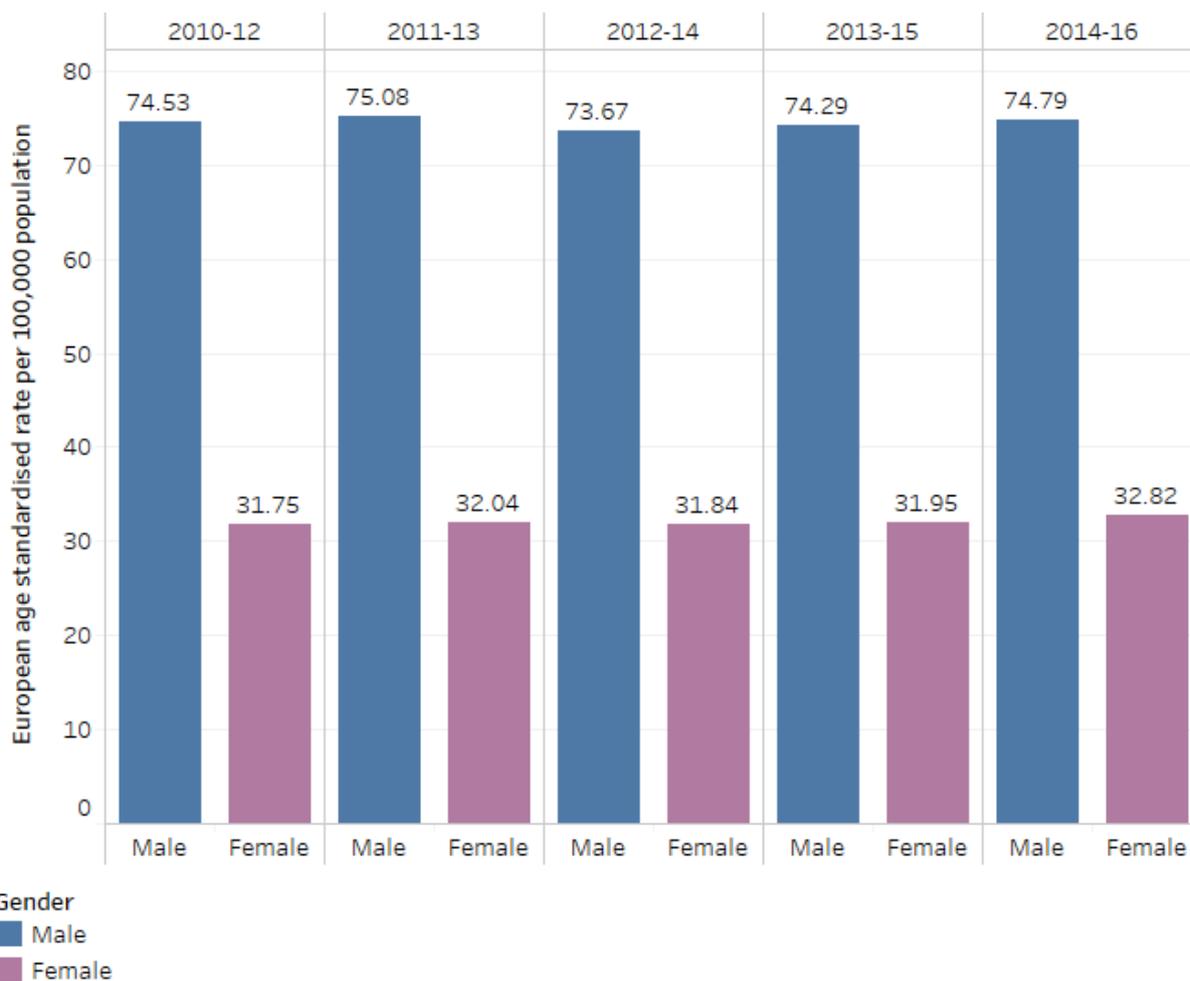


Source: Office for National Statistics and NWIS 2017

**Chart 40: European age standardised rate of alcohol related deaths, AAF method, Wales, three year rolling averages, deaths registered in 2014-16, by Health Board**

### Alcohol attributable mortality

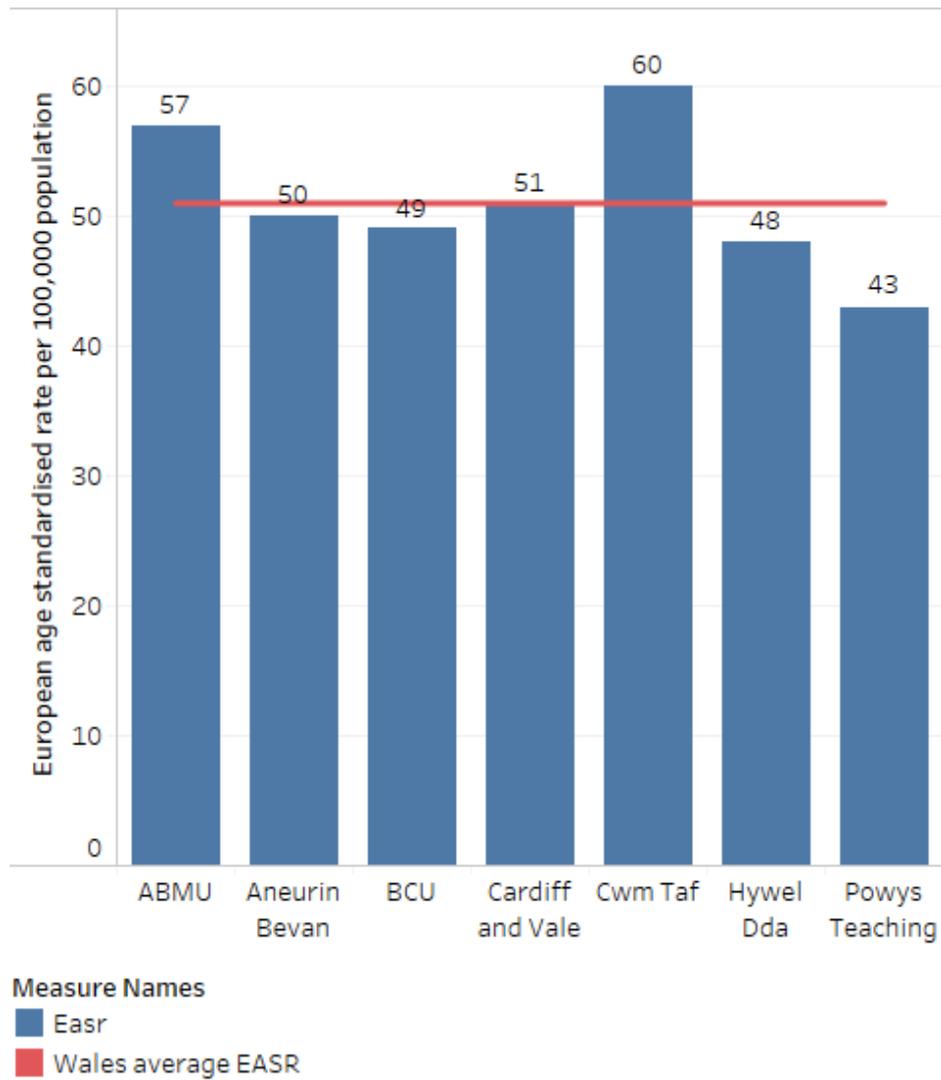
Alcohol attributable mortality in Wales shows less variation over the most recent five periods of three year rolling averages than alcohol specific mortality, with the European age standardised rate across all persons remaining stable at around 53.1 per 100,000 population over the period. The rolling average rates of alcohol attributable mortality are shown in Chart 41.



Source: Office for National Statistics and NWIS, 2017

**Chart 41: European Age Standardised Rate of alcohol attributable deaths, AAF method, Wales, three year rolling averages, years in which death was registered 2010-12 to 2014-16, by sex**

Chart 42 shows alcohol attributable mortality by Health Board by three year rolling average of the five most recent periods. The pattern amongst Health Boards is similar to that for alcohol specific mortality described above, although the differences between health boards are proportionately smaller. For the population of Wales, the standardised rate is 51 per 100,000 population. Cwm Taf was the Health Board with the highest EASR for alcohol attributable mortality at 60 per 100,000 population, Powys Teaching recorded the lowest average rate for 2014-16 with 43 per 100,000 population.



Source: Office for National Statistics and NWIS, 2017

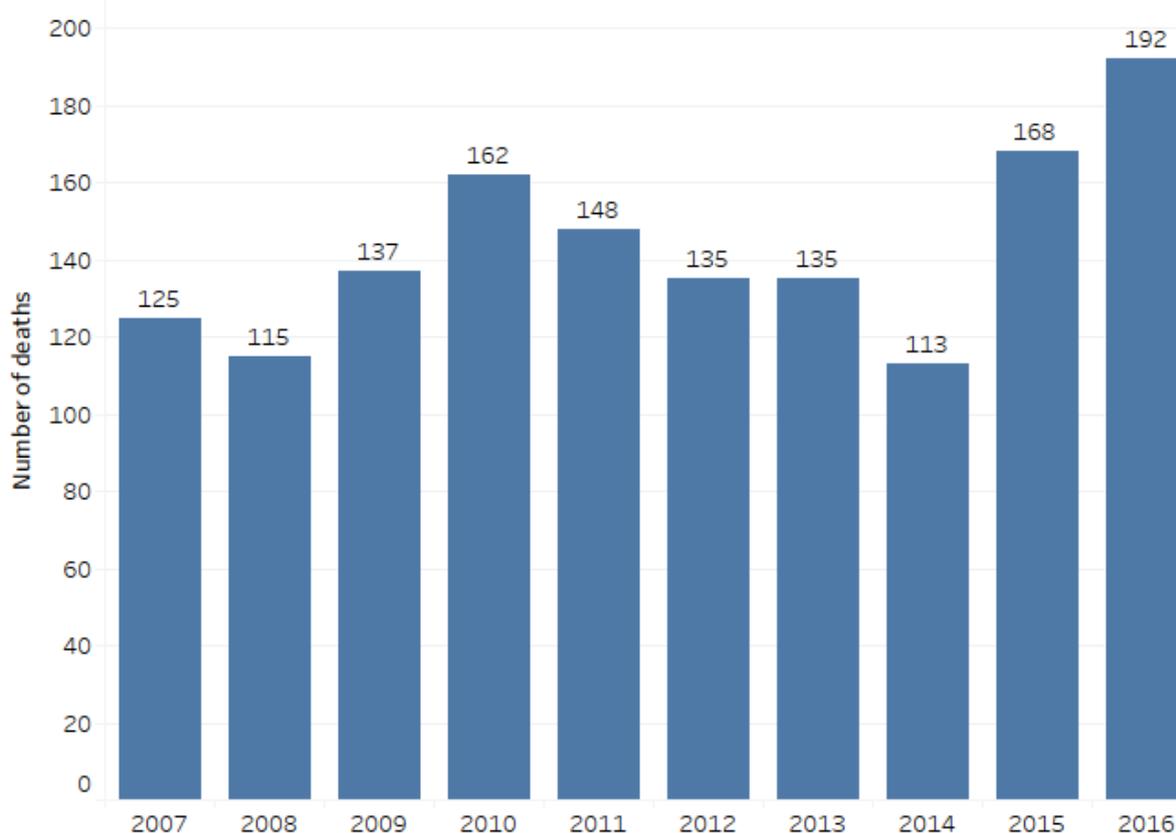
**Chart 42: European age standardised rate of alcohol attributable deaths, AAF method, Wales, three year rolling averages, deaths registered in 2013-15, by Health Board**

## Drug related deaths

The Office for National Statistics (ONS) reports two main measures in relation to drug deaths. 'Deaths related to drug poisoning' includes all deaths in which the underlying cause references an ICD-10 related to both legal and illegal drugs (not including alcohol and tobacco), whilst 'Deaths related to drug misuse' is the subset of drug poisoning deaths involving illicit drugs. A more detailed description of these measures is provided in Appendix 4. All figures in this section are for deaths registered in a given year.

### Deaths by drug poisoning and drug misuse deaths by gender and age

There were substantial rises in the number of deaths from both drug poisoning and drug misuse in Wales registered in 2016 compared with the previous year. Drug poisoning deaths rose by 13.9 per cent to 271, whilst drug misuse deaths rose from 168 in 2015 to 192 in 2016, an increase of 14.3 per cent. A total of 146 males died from drug misuse in Wales in 2016, an increase of 9.8 per cent, while the 46 deaths involving females represented a rise of 31.4 per cent from the previous year. Chart 433 shows the number of drug misuse deaths in Wales between 2007 and 2016.

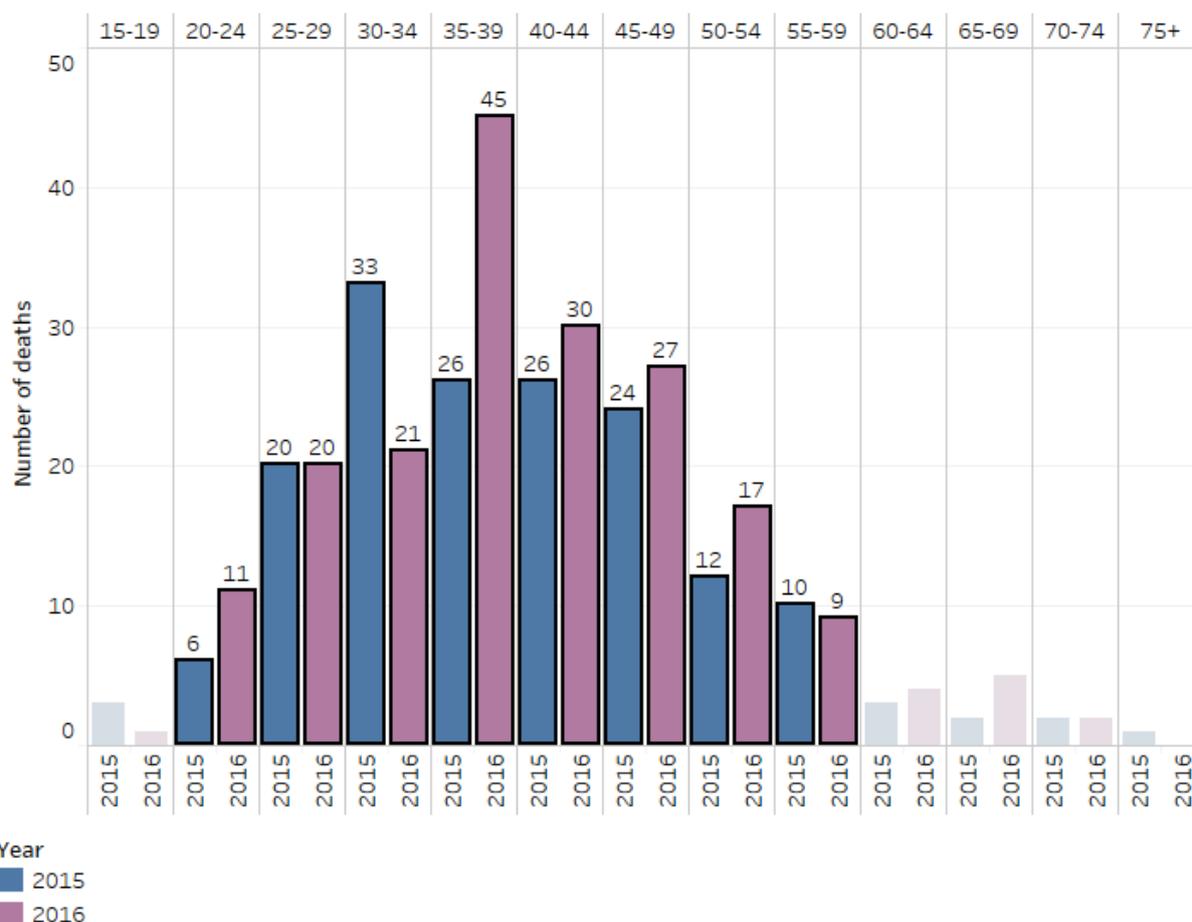


Source: Office for National Statistics, 2017

**Chart 43: Number of deaths from drug misuse in Wales by year of registration, 2006-15**

As shown in Chart 44, there were increases in the number of deaths across every age band from 35-39 to 65-69, with the exception of those aged 55-59. Decreases in the number of deaths were observed those aged 30-34 from the previous year, however, this may be indicative of deaths within

the same cohort with a number moving into the older age group (35-39) over the year, i.e. those born 1980/81. In 2014, 47.8 per cent of drug misuse deaths were amongst those aged 40 or younger, in 2015 this figure rose to 52.4 but in 2016 dropped to 51 per cent.



Source: Office for National Statistics, 2017

**Chart 44: Number of deaths from drug misuse in Wales by 5 year age band, deaths registered in 2015 and 2016**

### Drug misuse deaths by sex and age group

Of the total 192 drug misuse deaths, males accounted for 75 per cent (n=144). The proportion of drug misuse deaths among males by age group in shown in table 5

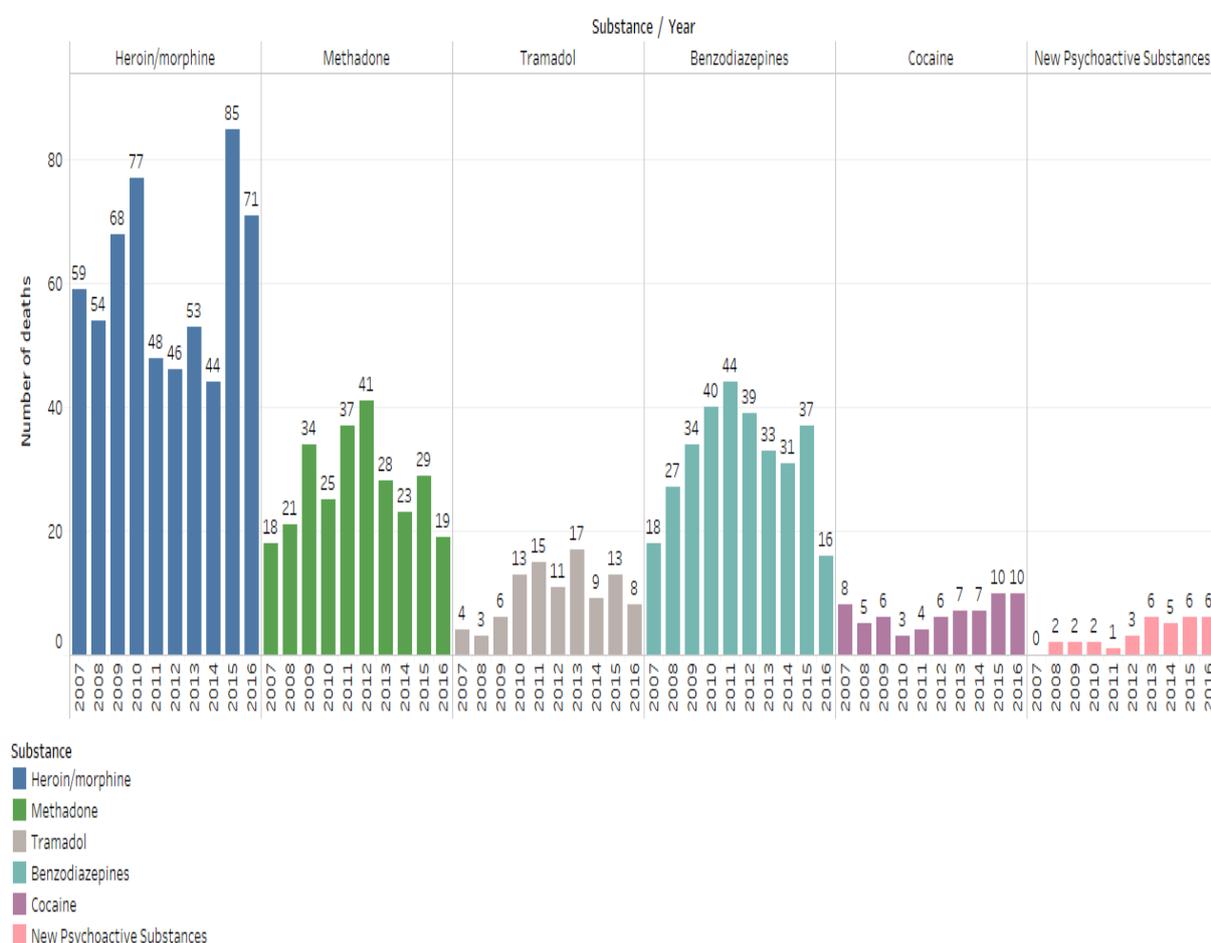
**Table 5: Proportion of drug misuse deaths registered in 2016 by age group and sex.**

Age group	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69
Proportion Male	0.0%	50.0%	65.0%	76.2%	93.3%	93.3%	77.7%	70.6%	33.3%	50.0%	20.0%

## Drug misuse deaths by substances reported

N.B. Note that more than one substance may be recorded on a death record. The figures in this section relate to all drugs recorded and therefore one death may be counted in relation to more than one substance.

Heroin/morphine was recorded as the primary underlying drug present at cause of death in 71 cases, a reduction of 16.5 per cent from the previous year, as shown in Chart 45. However, when including all opiates named<sup>18</sup> and identified within post mortem investigations, this figure rises to 109 deaths, accounting for 56.8 per cent of all drug misuse deaths registered in 2016. Deaths in which methadone was mentioned decreased to 19. Cocaine was recorded as present in ten deaths, stable on the previous year, as were deaths recorded as resulting primarily from use of New Psychoactive Substances with six deaths recorded. Chart 45 shows the number of deaths over the past ten years in which selected substances have been recorded.



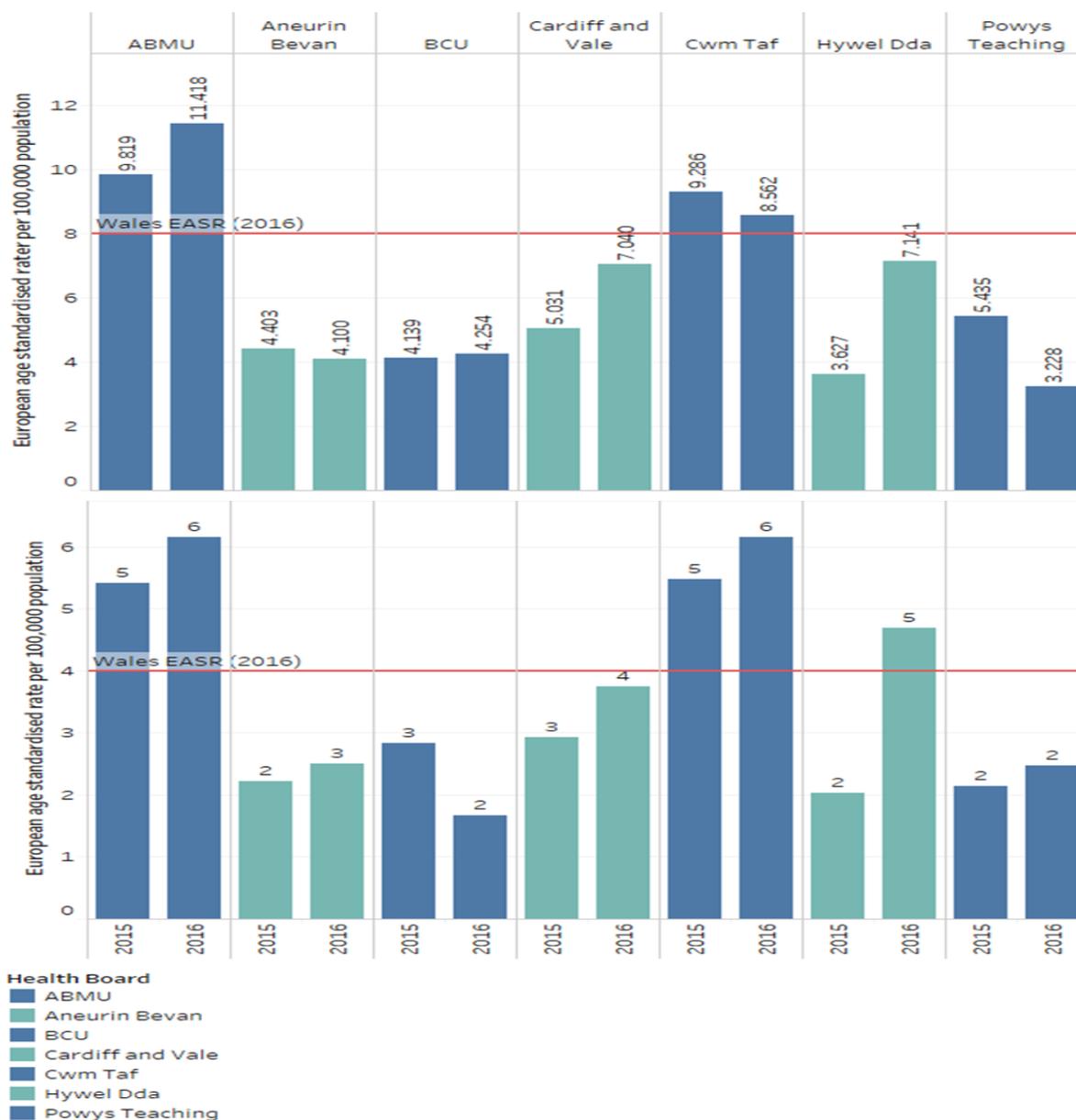
Source: Office for National Statistics, 2017

**Chart 45: Number of deaths from drug misuse in Wales in which selected substances were recorded, deaths registered 2007-2016**

<sup>18</sup> Including 'opiate – 14 deaths, Oxycodone – 3 deaths, Dihydrocodeine – 9 deaths, heroin/morphine named as second or third named substance – 12 deaths

## Drug misuse deaths by Health Board area

The European age standardised rate (EASR) for drug misuse deaths registered in 2016 in Wales was 8.0 per 100,000, compared with 5.8 per 100,000 population in 2015. Rates varied substantially across health board areas with ABMU recording the highest rate at 11.4 per 100,000 population in 2016, a rise in rate of 1.6 per 100,000 population as shown in Chart 46 (upper graph). ABMU and Cwm Taf health board areas both had higher rates than the Wales average. Substantial increases in rates were recorded in Cardiff & Vale health board area with increases of 2 deaths per 100,000 population and Hywel Dda with an increase in rate of 3.5 deaths per 100,000 population in 2016 compared with 2015.

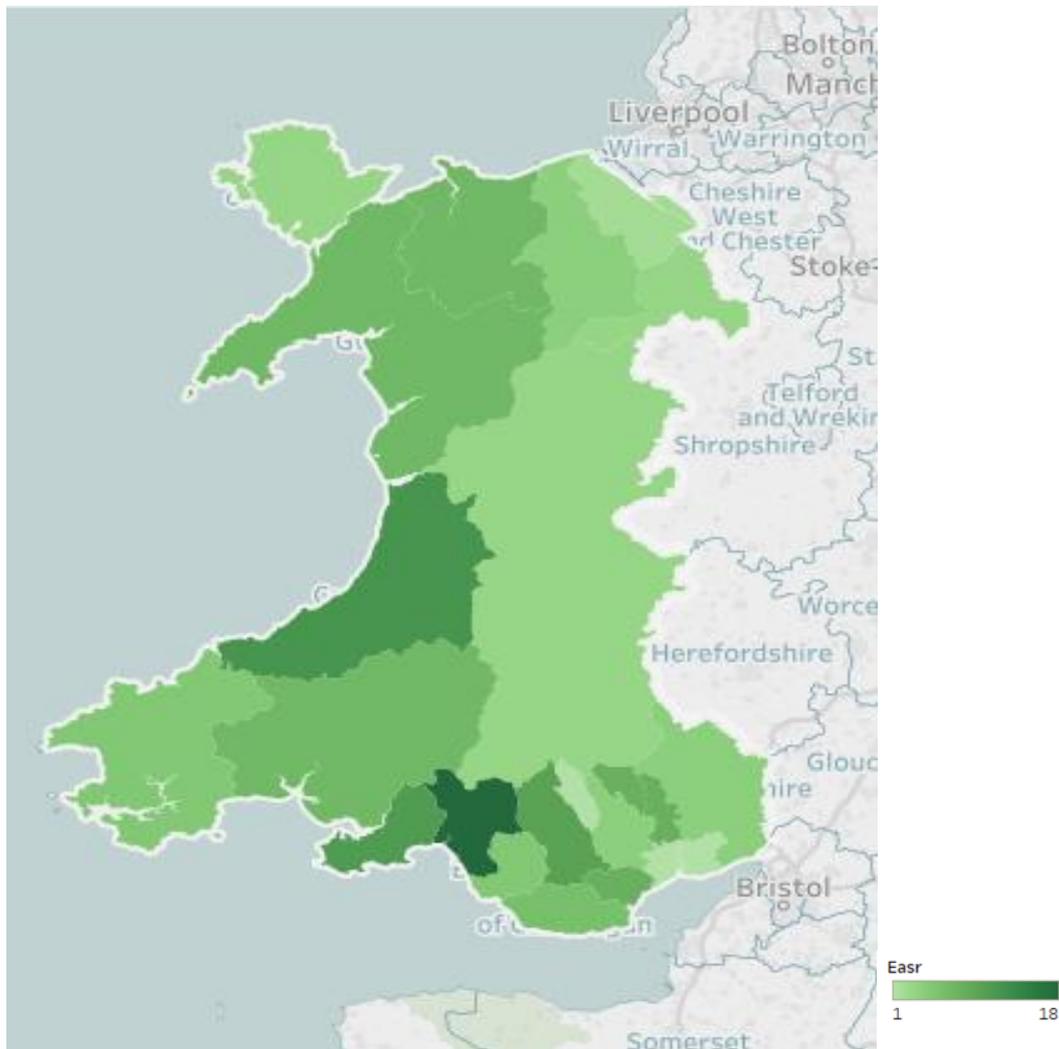


Source: Office for National Statistics, 2017

**Chart 46: European Age Standardised Rate per 100,000 population of drug misuse deaths in Wales, all and those involving heroin/morphine, deaths registered in 2015 and 2016, by Health Board area**

As the figures presented in previous subsections suggest, increases in the overall rate appear to have been driven by greater numbers of deaths involving heroin/morphine, with every area, except Betsi Cadwaladr health board area, reporting increases in heroin/morphine deaths, again shown in Chart 46 (lower graph). The EASR per 100,000 population of heroin/morphine deaths for Wales as a whole rose from 3 to 4 deaths per 100,000 population in 2016. Notable increases in the EASR per 100,000 population of heroin/morphine deaths occurred in Hywel Dda, ABMU and Cwm Taf health board areas in 2016.

**Error! Reference source not found.** shows the average EASR per 100,000 population for the most recent year mapped by local authority and illustrates the geographical variation of drug misuse deaths even between adjacent and relative small areas. Over this period, Neath Port Talbot had the highest EASR at 18 drug misuse deaths per 100,000 population, followed by Ceredigion with 12 per 100,000 population, Swansea with 11.5 per 100,000 population and Rhondda Cynon Taf with 10.3 per 100,000 population. The lowest EASR were recorded in Newport with 0.7 per 100,000 and Merthyr Tydfil with 1.4 deaths per 100,000 population. These figures, alongside those for Health Board areas above demonstrate that there are complex patterns across areas over time in relation to drug misuse deaths.



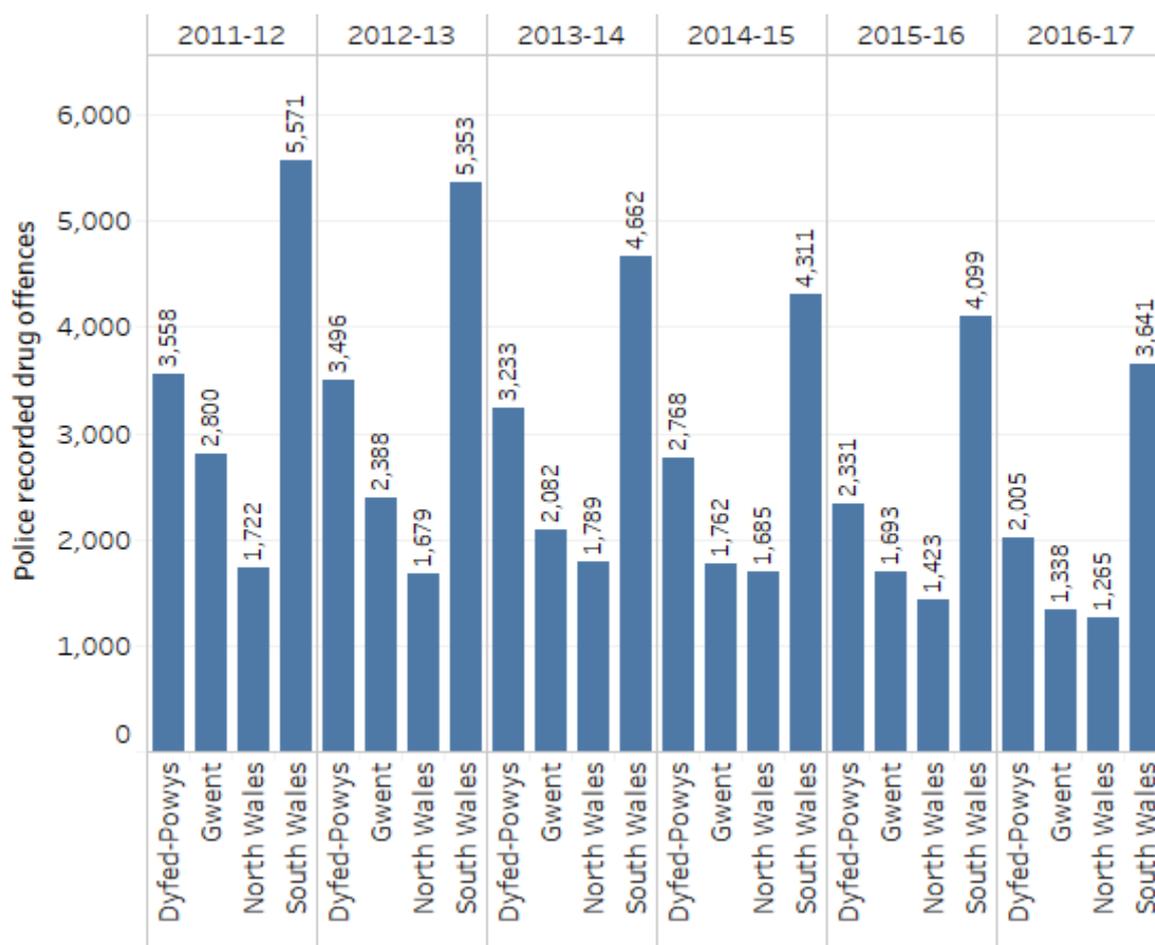
Source: Office for National Statistics, 2017

**Figure 3: European age standardised rate per 100,000 population of deaths from drug misuse registered in Wales 2016.**

## Police recorded drugs offences and purity of drugs seized by the police: all ages

### Recorded drugs offences in Wales

Police forces in Wales recorded a total of 8,429 drugs offences in Wales in 2016-17, a fall of 11.7 per cent compared with 2015-16. As in the previous year, South Wales recorded the greatest number of drug offences and North Wales the fewest. The decrease in overall recorded drugs offences is consistent across all police force areas and year on year over the five-year period since 2012-13. The number of drug offences recorded by Welsh police forces for the five years to 2015-16 is shown in Chart 47.

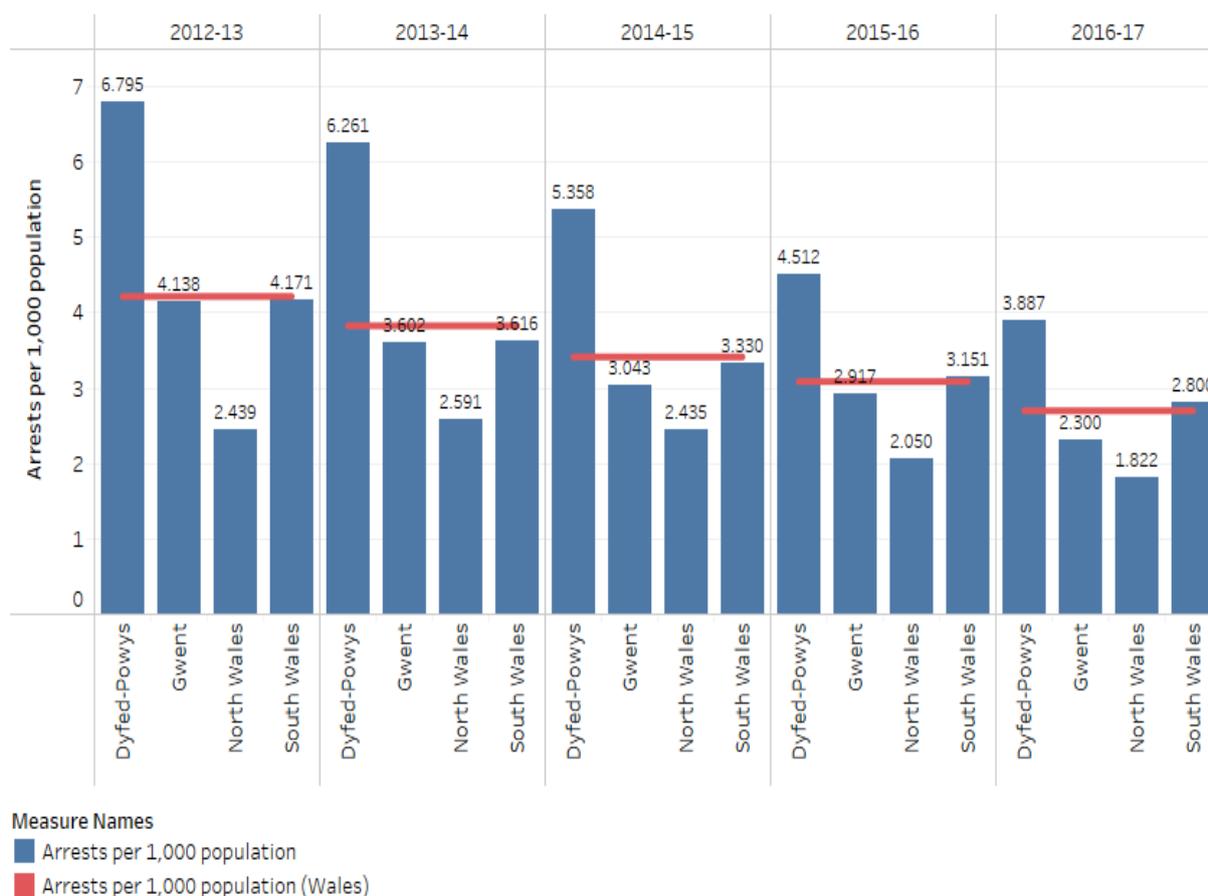


Source: Office for National Statistics, 2016

**Chart 47: Number of drug offences recorded by police forces in Wales by year and police force, 2012-13 to 2016-17**

However, the number of residents in these police territories varies considerably and therefore the rate of drug offences occurring in each area is a more appropriate comparable measure. In 2016-17, the highest rate per 1,000 population of drug offences was recorded in Dyfed Powys, with 3.8 drug offences recorded per 1,000 residents, down from 4.5 per 1,000 the previous year. The lowest rate was recorded North Wales, with 1.8 offences per 1,000 population. The overall rate of recorded

drugs offences for Wales was 2.7 per 1,000 population. The rate of police recorded crimes by year and police force area for Wales is shown in Chart 48.

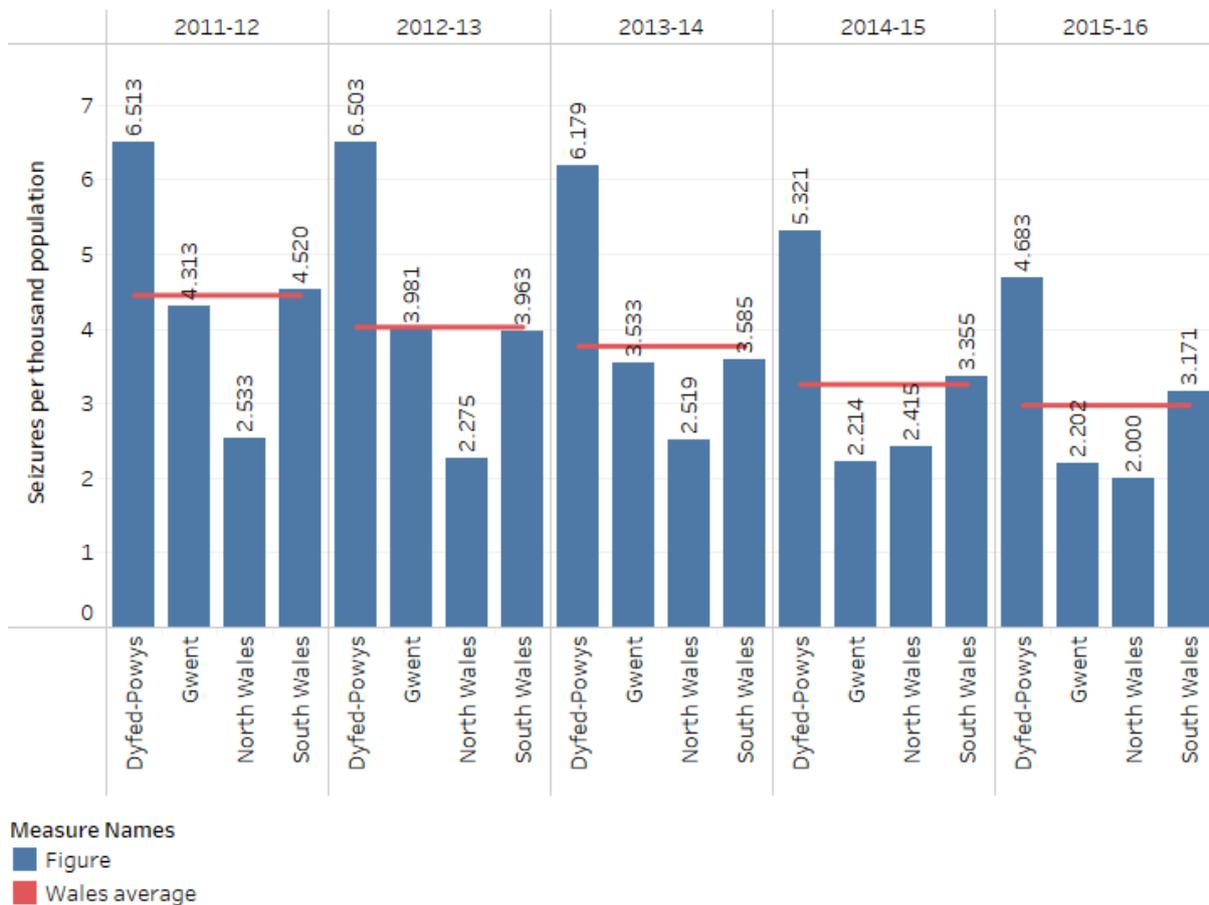


Source: Office for National Statistics, 2016

**Chart 48: Rate per 1,000 population of drug offences recorded by police forces in Wales by year and police force, 2012-13 to 2016-17, with the Wales average rate**

### Seizure of illicit drugs in Wales

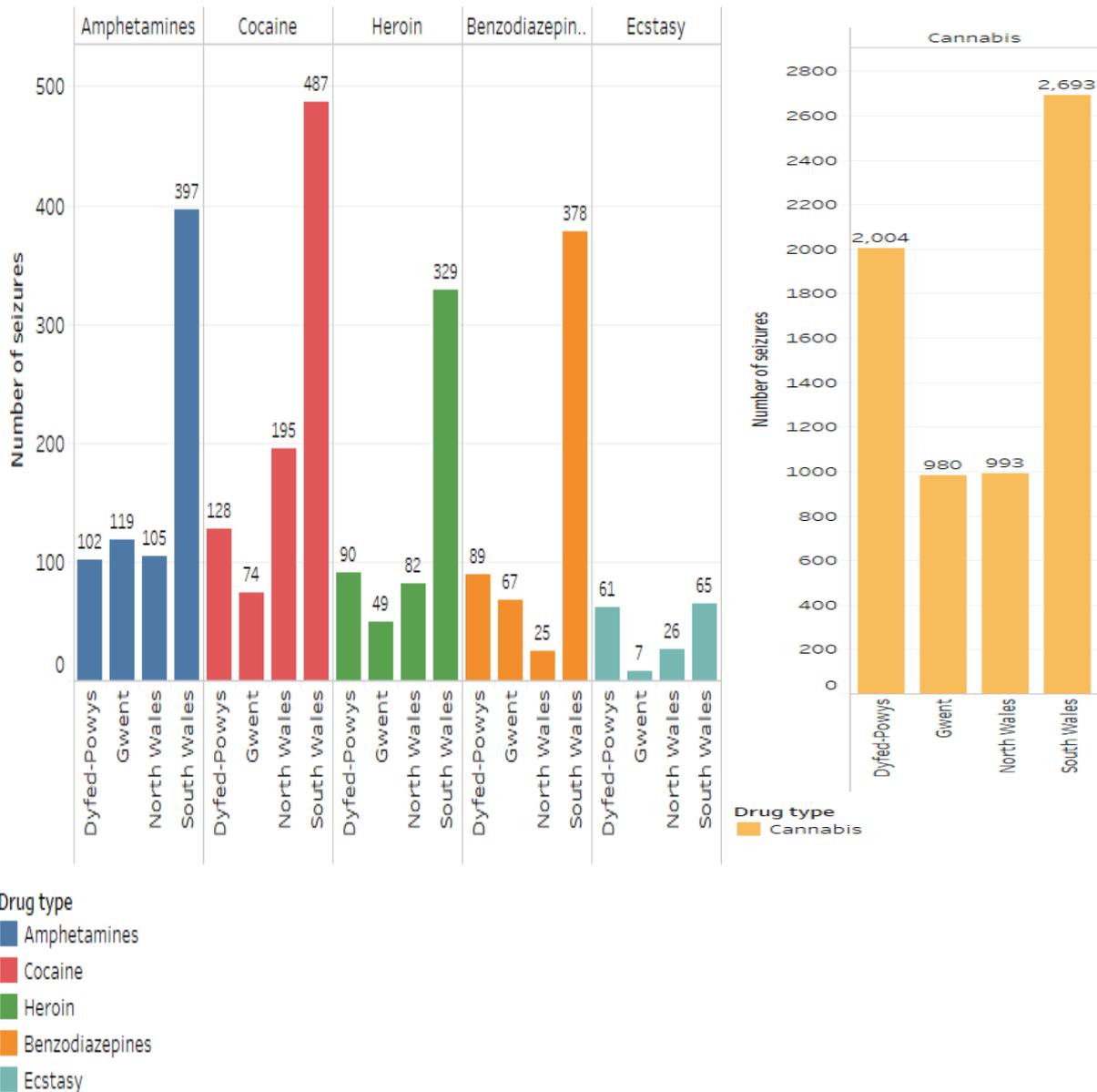
There were 9,230 seizures of illicit drugs by police forces in Wales in 2015-16, the most recent year for which data are available, a fall of 8 per cent compared with 2014-15. This represents an average of 3 seizures per 1,000 population in Wales, a decrease from 3.3 per 1,000 population the previous year. Differences in the rate of seizures between police forces in Wales mirror differences in the number of recorded drug offences, with Dyfed-Powys recording the highest rate of seizures and the North Wales and Gwent forces recording the lowest rates. Chart 49 shows the rate of seizures per 1,000 population for each of the four Welsh police forces and the Wales average between 2011-12 and 2015-16.



Source: Home Office, 2015

**Chart 49: Rate of seizures of illicit drugs by police forces in Wales per 1,000 population, by police force and Wales average, 2011-12 to 2015-16**

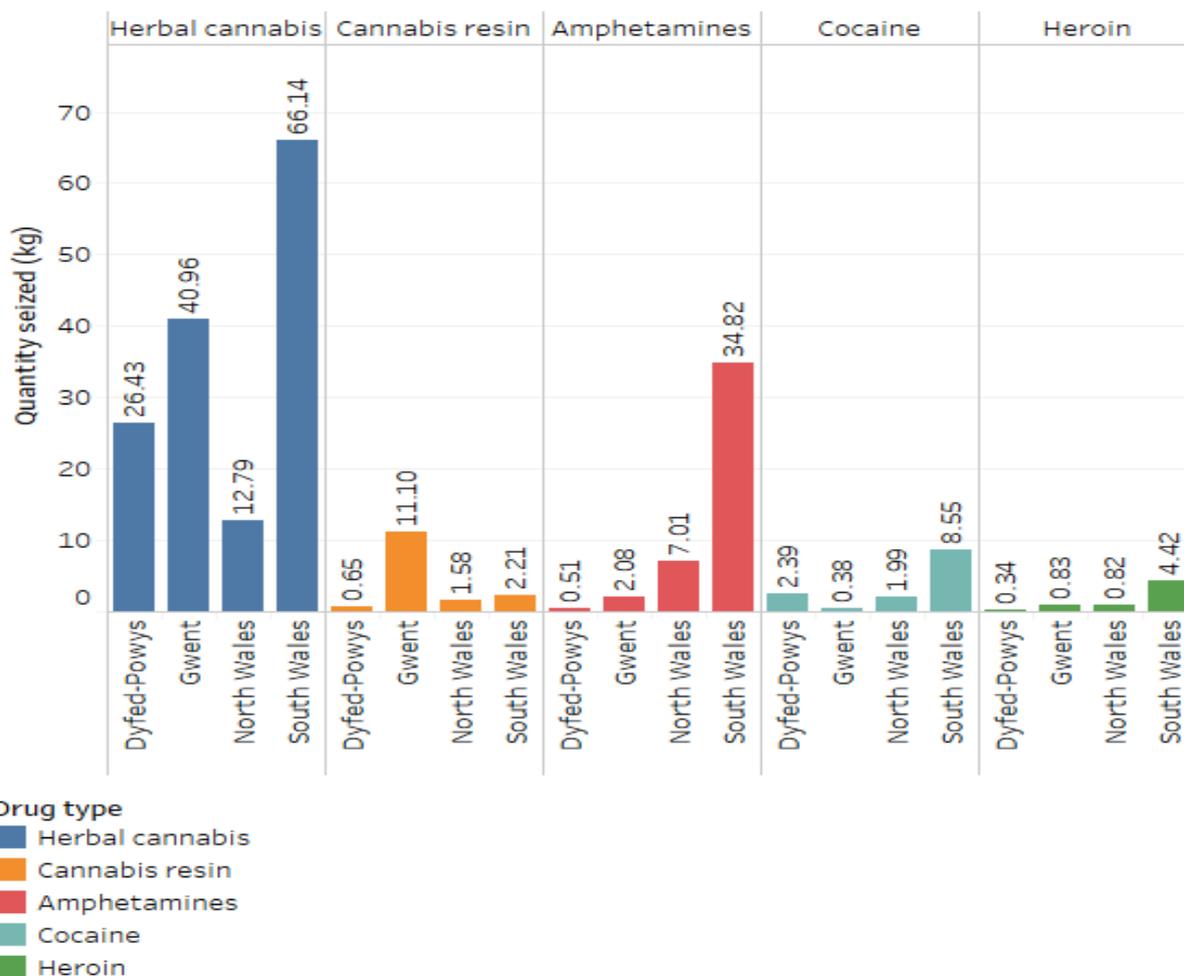
The majority, 70 per cent, of seizures involved cannabis with a further 9.2 per cent of all seizures accounted for by cocaine (884 seizures), 7.6 per cent amphetamine and 5.8 per cent heroin. South Wales accounted for 45.6 per cent of all seizures, an increase of 2.3 percentage points on the previous year. South Wales Police also recorded higher proportions of seizures of class A drugs including 59.8 per cent of all heroin seizures and 55 per cent of all cocaine/crack seizures in 2015-16. Wales has accounted for between 5.7 and 6.3 per cent of all drug seizures in the UK since 2006-07, with 6 per cent of UK seizures occurring in Wales in 2015-16. The number of seizures recorded by police force for selected drugs is shown in Chart 50.



Source: Home Office, 2017

**Chart 50: Number of seizures by Welsh police forces, 2015-16, selected drugs.**

The quantity of illicit drugs seized is reported in kilograms for some drugs and doses for others. Across Wales, cannabis was seized in greater quantities than any other illicit drug, with 66.14kg of herbal cannabis seized in 2015-16, a decrease of 42 per cent on the previous year. After cannabis, the illicit drugs seized in the greatest quantities by weight in Wales in 2014-15 were amphetamines, 34.8kg, up from 24.3kg in 2014-15. Chart 51 shows the quantity of selected drugs seized by police forces in Wales in 2015-16.



Source: Home Office, 2017

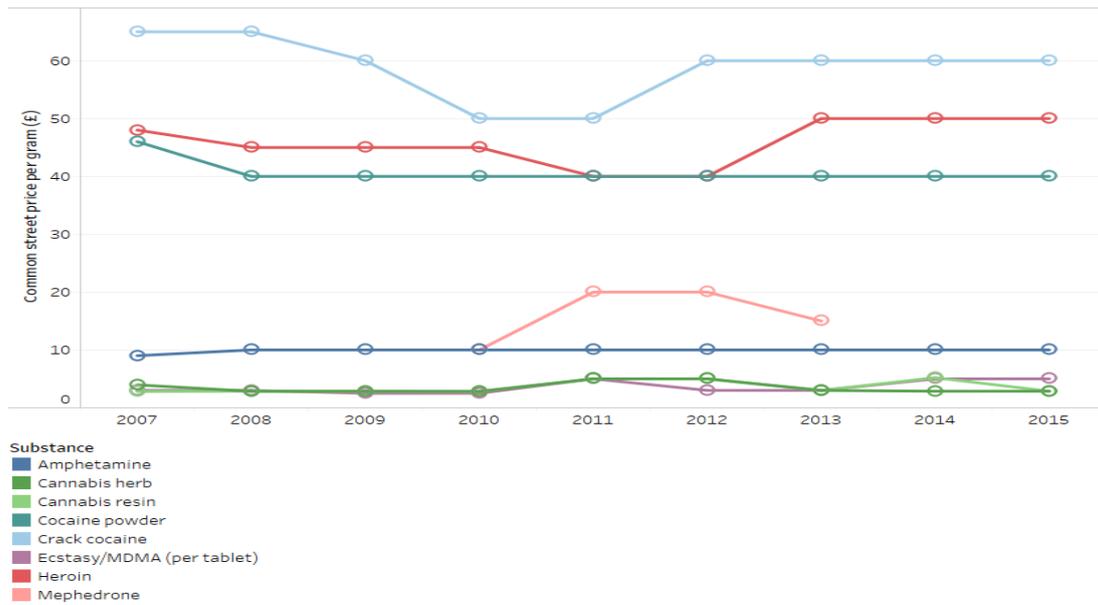
**Chart 51: Quantity (Kg) of illicit drugs seized by Welsh police forces, 2015-16, selected drugs**

For illicit drug seizures measured by dose, benzodiazepines were by a considerable margin the drug most seized, with 113,000 doses in 2015-16, an increase of 39.9 per cent from 2014-15. Ecstasy was the next most commonly seized drug by weight with 13,000 doses, an increase of 29.1 per cent on the previous year.

### Price and purity of selected illicit drugs – UK

Price and purity of selected drugs are reported by UK Focal Point<sup>19</sup>, which provides data on drug trends to the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). In this context, purity of a drug describes the degree to which a quantity of the drug has remained free from other substances that may be added to increase the quantity and therefore resale value. Prices are calculated based on data from law enforcement agencies and are adjusted to reflect different levels of purity at different times. These data are not currently broken down by region, therefore the figures presented in this section relate to the UK as a whole. **Error! Reference source not found.** shows the typical street prices of selected illicit drugs in the UK to 2015, the most recent year for which data are available.

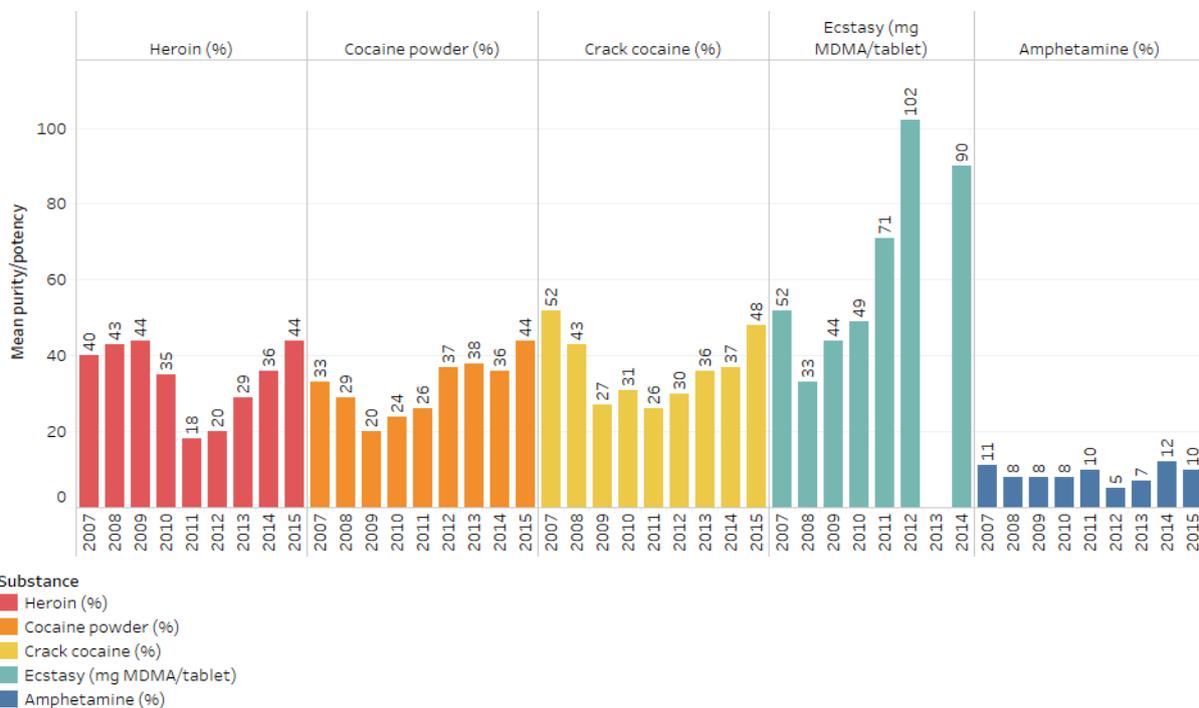
<sup>19</sup> UK Focal Point annual reports are available at <http://www.nta.nhs.uk/focalpoint.aspx>



Source: UK Focal Point, 2017

**Chart 52: Typical street price of selected illicit drugs based on law enforcement agency reports, UK, 2006-15**

Data for the UK suggests that drug prices have remained relatively stable in recent years. No data on mephedrone prices have been published since 2013.



Source: National Crime Agency

**Chart 533: Mean percentage purity of small quantity drug seizures in England and Wales, 2007-15, by selected drugs**

As shown in Chart 53, the purity of all the named drugs increased in the previous year, a consistent trend seen since 2011, with the exception of amphetamine. The purity of small quantity heroin seizures are now comparable to those recorded prior to the reported heroin drought. The purity of cocaine powder is increasing alongside that of crack cocaine. The greatest increase in potency is recorded in Ecstasy seizures, findings consistent with evidence from WEDINOS.<sup>20</sup>

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<sup>20</sup> See WEDINOS MDMA report available at: <http://www.wedinos.org/resources/downloads/MDMA-1.pdf>

## Appendix I: Hospital admissions related to alcohol, definitions

When an individual is admitted to hospital, the period between admission and discharge or death is described as a 'spell'. A spell may be made up of a number of distinct 'episodes' during which the patient is under the care of a named consultant. A new episode will begin when a patient is transferred to the care of another consultant, whether this is because a different medical need has been identified, because the patient has reached a transition point in their recovery or need for care, or for some other reason. For each episode, the condition which is identified as the most relevant in relation to their admission or ongoing treatment is recorded by medical staff, alongside further, secondary conditions which affect treatment and any external factors which relate to the admission. These records are coded to a standard framework called the International Statistical Classification of Diseases and Related Health Problems, now in its tenth edition and therefore known as the 'ICD-10'. Full descriptions of the conditions associated with every ICD-10 code are available from the World Health Organization at <http://apps.who.int/classifications/icd10/browse/2010/en>.

There are four key dimensions for measuring the impact of alcohol on the health of the population and on the healthcare services that provide medical care through hospital admissions. These dimensions are described in Table 6.

**Table 6: Dimensions used to measure impact of alcohol on populations and healthcare services**

Dimension	Description and options
<b>Selection of core ICD-10 codes</b>	The choice of ICD-10 codes to include in analysis. For alcohol related admissions, this report uses ICD-10 codes originally produced by produced by Centre for Public Health, Liverpool John Moores University <sup>21</sup> and adopted by Public Health England <sup>22</sup> . These are often referred to as 'Alcohol Attributable Fractions' (' <b>AAF</b> '). Note that analysis of alcohol related deaths in this report used both the AAF definition and the definition used by the Office for National Statistics (' <b>ONS</b> '). See Appendix 2, below. A list of all AAF ICD-10 codes is shown in Table XXX below.
<b>'Specific' or 'attributable'</b>	<b>'Alcohol specific conditions'</b> are commonly defined as those conditions, such as alcoholic liver disease, which are 100 per cent attributable to the use of alcohol. However, alcohol also plays a role in a wider range of <b>'alcohol attributable conditions'</b> . For example, it is

<sup>21</sup> Jones, L and Bellis, M (2013) Updating England-specific alcohol attributable fractions, Centre for Public Health, Liverpool John Moores University. <http://www.cph.org.uk/wp-content/uploads/2014/03/24892-ALCOHOL-FRACTIONS-REPORT-A4-singles-24.3.14.pdf>, viewed 02.09.16

<sup>22</sup> Public Health England (2015) Local Alcohol Profiles for England 2015 user guide. [http://www.lape.org.uk/downloads/LAPE%20User%20Guide\\_Final.pdf](http://www.lape.org.uk/downloads/LAPE%20User%20Guide_Final.pdf), viewed 02.09.16

	<p>estimated that alcohol plays a causative role in 25-33 per cent of cardiac arrhythmias, with the proportion varying by gender and age<sup>23</sup>. Some external cause codes also have an alcohol-attributable fraction: it has been estimated that 27 per cent of assaults are alcohol-related<sup>23</sup>. As described above, Alcohol attributable fractions (AAF), describing the causative contribution accounted for by alcohol across the population have been calculated for a range of conditions and NWIS has used these fractions to produce figures for alcohol attributable admissions which are presented in this report. 'Alcohol attributable conditions' includes all 'alcohol specific conditions', since these are by definition 100 per cent caused by alcohol. A list of all AAF ICD-10 codes is shown in Table XXX below.</p>
<p><b>Diagnostic position</b></p>	<p>Records can be counted if they include any relevant code in the primary diagnostic position or if they include any relevant code in any (primary or secondary) diagnostic position. When considering alcohol specific conditions (see above) the measure most frequently used is admissions with an alcohol related condition in any position ('<b>any position</b>'); however, figures for admissions with an alcohol related condition in the primary position are also occasionally cited ('<b>primary position</b>').</p> <p>The methods for producing figures for alcohol attributable conditions (see above) also involve calculating measures based on primary and secondary diagnosis; however, there are a number of differences between these calculations and those used to produce alcohol specific figures. A '<b>narrow measure</b>' includes all records in which the primary diagnosis was an alcohol attributable condition OR any secondary diagnosis was an 'external cause' (see list XXX). A '<b>broad measure</b>' includes all records in which any alcohol attributable condition appeared in any diagnostic position. In both cases, where more than one alcohol attributable condition appears in the record, the condition with the highest alcohol attributable fraction is selected.</p> <p>Also, see below for interactions between diagnostic position and person/episode based figures.</p>
<p><b>Person or admission based</b></p>	<p>Figures can be calculated for the number of individuals admitted ('<b>person based</b>') or for the total number of admissions ('<b>admission based</b>'), bearing in mind that some individuals will be admitted more than once in a given time period. Person based measures may offer a more useful</p>

<sup>23</sup> Perkins, C and Hennessey, M (2014) Understanding alcohol-related hospital admissions. Chief Knowledge Officer, Public Health Matters blog, Public Health England.  
<https://publichealthmatters.blog.gov.uk/2014/01/15/understanding-alcohol-related-hospital-admissions/>  
viewed 02.09.16

	<p>picture of the health of the population; admission based figures may be more relevant when considering the burden that particular conditions place on services. In general, this report uses person based measures.</p> <p>Following the conventions adopted by Public Health England, Public Health Wales counts person based substance misuse admissions on the basis of a relevant ICD-10 code appearing for any episode of the spell. For admission based figures, only admissions for which the relevant condition appears in the record for the admitting episode are included.</p>
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There is a wide range of technical considerations relating to the development of measures over time and the methods of extracting and analyzing data. Where comparisons between Wales and England are described in this report, figures are considered comparable; however, there may be minor differences in how data are defined and processed. For more detailed discussion on how alcohol related admissions figures are produced for Wales, please see Public Health Wales Observatory (2014) Alcohol and health in Wales 2014, Technical Guide ([http://www2.nphs.wales.nhs.uk:8080/PubHObservatoryProjDocs.nsf/85c50756737f79ac80256f2700534ea3/65ed28d06e1f44fd80257d73002a4e75/\\$FILE/AlcoholAndHealthInWales\\_TechnicalGuide\\_v2a.pdf](http://www2.nphs.wales.nhs.uk:8080/PubHObservatoryProjDocs.nsf/85c50756737f79ac80256f2700534ea3/65ed28d06e1f44fd80257d73002a4e75/$FILE/AlcoholAndHealthInWales_TechnicalGuide_v2a.pdf))

For details on the production of figures for England, please see: Public Health England (2015) Local Alcohol Profiles for England 2015 user guide ([http://www.lape.org.uk/downloads/LAPE%20User%20Guide\\_Final.pdf](http://www.lape.org.uk/downloads/LAPE%20User%20Guide_Final.pdf))

The most recent ICD-10 codes for alcohol specific and alcohol attributable conditions were published in 2013 and are set out in Table 7. Note that updated codes in the 2013 edition of the Alcohol Attributable Fractions added seven codes to the alcohol specific set of codes set out in the previous (2008) edition which was used for previous versions of this report. These codes, noted in Table 3, together accounted for 250 admissions with an alcohol specific diagnosis in any position in 2013-14, 1.6 per cent of the total.

**Table 7: ICD-10 codes for alcohol specific and alcohol attributable conditions, as defined by the Alcohol Attributable Fractions (2013)**

Condition	Code
<b><i>Alcohol specific conditions (100 per cent caused by alcohol)</i></b>	
Alcohol-induced pseudo-Cushing's syndrome	E24.4
Mental and behavioural disorders due to use of alcohol	F10
Degeneration of nervous system due to alcohol	G31.2
Alcoholic polyneuropathy	G62.1
Alcoholic myopathy	G72.1
Alcoholic cardiomyopathy	I42.6
Alcoholic gastritis	K29.2

Alcoholic liver disease	K70
Alcohol-induced acute pancreatitis*	K85.2*
Alcohol-induced chronic pancreatitis	K86.0
Foetal alcohol syndrome (dysmorphic)*	Q86.0*
Excess alcohol blood levels*	R78.0*
Ethanol poisoning	T51.0
Methanol poisoning	T51.1
Toxic effect of alcohol, unspecified	T51.9
Accidental poisoning by and exposure to alcohol	X45
Intentional self-poisoning by and exposure to alcohol*	X65
Poisoning by and exposure to alcohol, undetermined intent*	Y15
Evidence of alcohol involvement determined by blood alcohol level*	Y90
Evidence of alcohol involvement determined by level of intoxication*	Y91
<b>*Codes added to list of alcohol specific conditions in 2013</b>	
<b>Partially alcohol attributable conditions</b>	
<b>Chronic conditions</b>	
<b>Infectious and parasitic diseases</b>	
Tuberculosis	A15-A19
<b>Malignant neoplasm</b>	
Malignant neoplasm of lip, oral cavity and pharynx	C00-C14
Malignant neoplasm of oesophagus	C15
Malignant neoplasm of colorectal	C18-C20, C21
Malignant neoplasm of liver and intrahepatic bile ducts	C22
Malignant neoplasm of larynx	C32
Malignant neoplasm of breast	C50
<b>Diseases of the nervous system</b>	
Epilepsy and Status epilepticus	G40-G41
<b>Cardiovascular disease</b>	
Hypertensive diseases	I10-I15
Ischaemic heart disease	I20-I25
Cardiac arrhythmias	I47-I48
Haemorrhagic stroke	I60-I62, I69.0-I69.2
Ischaemic stroke	I63-I66, I69.3-I69.4
Oesophageal varices	I85
<b>Respiratory infections</b>	
Pneumonia	J10.0, J11.0, J12-J15, J18
<b>Digestive disease</b>	
Unspecified liver disease	K73, K74
Cholelithiasis (gall stones)	K80
Acute and chronic pancreatitis	<b>K85, K86.1</b>
<b>Pregnancy and childbirth</b>	
Spontaneous abortion	O03

Low birth weight	P05-P07
<b>Acute conditions</b>	
<b>Unintentional injuries</b>	
Road/pedestrian traffic accidents	*
Poisoning	X40-X49
Fall injuries	W00-W19
Fire injuries	X00-X09
Drowning	W65-W74
Other unintentional injuries	*
<b>Intentional injuries</b>	
Intentional self-harm	X60-X84, Y87.0
Event of undetermined intent	Y10-Y34, Y87.2
Assault	X85-Y09, Y87.1

In addition to reporting on numbers and rates for all alcohol specific and alcohol attributable conditions, this report also reports on three subcategories of alcohol related admissions: those related to fetal alcohol syndrome (FAS), fetal/maternal withdrawal from alcohol and other drugs of addiction and alcohol related brain damage (ARBD). The ICD-10 codes used to define these conditions in this report are shown in

**Table 8: ICD-10 codes used to define fetal alcohol syndrome, maternal withdrawal from alcohol and drugs of addiction and alcohol related brain damage in this report**

Conditions	ICD-10 codes
Fetal alcohol syndrome	Q860
Fetal/maternal withdrawal from alcohol and drugs of addiction	P043, P044, P961
Alcohol related brain damage	E512, E52, F106, F107, G312, G621, K704, G371

Of particular interest in analysis of morbidity and mortality arising from drug and alcohol use are the ICD-10 codes related to 'Mental and behavioural disorders due to psychoactive drug use', coded F10-F19. Each three figure code (F10, F11, etc.) relates to a specific substance or class of substances. An additional, fourth figure may be added to provide further detail concerning the condition from which an individual may be suffering.

The fourth character details are summarised in Table 9.

**Table 9: Details of conditions denoted by the fourth character of ICD-10 codes beginning with 'F'**

<p><b>Fxx0</b></p>	<p><b>Acute intoxication</b></p> <p>A condition that follows the administration of a psychoactive substance resulting in disturbances in level of consciousness, cognition, perception, affect or behaviour, or other psycho-physiological functions and responses. The disturbances are directly related to the acute pharmacological effects of the substance and resolve with time, with complete recovery, except where tissue damage or other complications have arisen. Complications may include trauma, inhalation of vomitus, delirium, coma, convulsions, and other medical complications. The nature of these complications depends on the pharmacological class of substance and mode of administration.</p> <p>Acute drunkenness in alcoholism</p> <p>"Bad trips" (drugs) Drunkenness NOS Pathological intoxication</p> <p>Trance and possession disorders in psychoactive substance intoxication</p> <p><b>Excludes:</b> <i>intoxication meaning poisoning</i></p>
<p><b>Fxx1</b></p>	<p><b>Harmful use</b></p> <p>A pattern of psychoactive substance use that is causing damage to health. The damage may be physical (as in cases of hepatitis from the self-administration of injected psychoactive substances) or mental (e.g. episodes of depressive disorder secondary to heavy consumption of alcohol).</p> <p>Psychoactive substance abuse</p>
<p><b>Fxx2</b></p>	<p><b>Dependence syndrome</b></p> <p>A cluster of behavioural, cognitive, and physiological phenomena that develop after repeated substance use and that typically include a strong desire to take the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to drug use than to other activities and obligations, increased tolerance, and sometimes a physical withdrawal state.</p> <p>The dependence syndrome may be present for a specific psychoactive substance (e.g. tobacco, alcohol, or diazepam), for a class of substances (e.g. opioid drugs), or for a wider range of pharmacologically different psychoactive substances.</p> <p>Chronic alcoholism</p>

	<p>Dipsomania</p> <p>Drug addiction</p>
<b>Fxx3</b>	<p><b>Withdrawal state</b></p> <p>A group of symptoms of variable clustering and severity occurring on absolute or relative withdrawal of a psychoactive substance after persistent use of that substance. The onset and course of the withdrawal state are time-limited and are related to the type of psychoactive substance and dose being used immediately before cessation or reduction of use. The withdrawal state may be complicated by convulsions.</p>
<b>Fxx4</b>	<p><b>Withdrawal state with delirium</b></p> <p>A condition where the withdrawal state as defined in the common fourth character .3 is complicated by delirium as defined in F05.-. Convulsions may also occur. When organic factors are also considered to play a role in the etiology, the condition should be classified to F05.8.</p> <p>Delirium tremens (alcohol-induced)</p>
<b>Fxx5</b>	<p><b>Psychotic disorder</b></p> <p>A cluster of psychotic phenomena that occur during or following psychoactive substance use but that are not explained on the basis of acute intoxication alone and do not form part of a withdrawal state. The disorder is characterized by hallucinations (typically auditory, but often in more than one sensory modality), perceptual distortions, delusions (often of a paranoid or persecutory nature), psychomotor disturbances (excitement or stupor), and an abnormal affect, which may range from intense fear to ecstasy. The sensorium is usually clear but some degree of clouding of consciousness, though not severe confusion, may be present.</p> <p>Alcoholic:</p> <ul style="list-style-type: none"> <li>· hallucinosis</li> <li>· jealousy</li> <li>· paranoia</li> </ul> <p><b>Excludes:</b> alcohol- or other psychoactive substance-induced residual and late-onset psychotic disorder ( <a href="#">F10-F19</a> with common fourth character .7)</p>

<p><b>Fxx6</b></p>	<p><b>Amnesic syndrome</b></p> <p>A syndrome associated with chronic prominent impairment of recent and remote memory. Immediate recall is usually preserved and recent memory is characteristically more disturbed than remote memory. Disturbances of time sense and ordering of events are usually evident, as are difficulties in learning new material. Confabulation may be marked but is not invariably present. Other cognitive functions are usually relatively well preserved and amnesic defects are out of proportion to other disturbances.</p> <p>Amnesic disorder, alcohol- or drug-induced</p> <p>Korsakov's psychosis or syndrome, alcohol- or other psychoactive substance-induced or unspecified</p> <p><b>Excludes:</b> <i>nonalcoholic Korsakov's psychosis or syndrome ( F04)</i></p>
<p><b>Fxx7</b></p>	<p><b>Residual and late-onset psychotic disorder</b></p> <p>A disorder in which alcohol- or psychoactive substance-induced changes of cognition, affect, personality, or behaviour persist beyond the period during which a direct psychoactive substance-related effect might reasonably be assumed to be operating. Onset of the disorder should be directly related to the use of the psychoactive substance. Cases in which initial onset of the state occurs later than episode(s) of such substance use should be coded here only where clear and strong evidence is available to attribute the state to the residual effect of the psychoactive substance. Flashbacks may be distinguished from psychotic state partly by their episodic nature, frequently of very short duration, and by their duplication of previous alcohol- or other psychoactive substance-related experiences.</p> <p>Alcoholic dementia NOS</p> <p>Chronic alcoholic brain syndrome</p> <p>Dementia and other milder forms of persisting impairment of cognitive functions</p> <p>Flashbacks</p> <p>Late-onset psychoactive substance-induced psychotic disorder</p> <p>Post hallucinogen perception disorder</p> <p>Residual:</p> <ul style="list-style-type: none"> <li>· affective disorder</li> <li>· disorder of personality and behaviour</li> </ul>

	<p><b>Excludes:</b> alcohol- or psychoactive substance-induced:</p> <ul style="list-style-type: none"> <li>· Korsakov's syndrome ( <a href="#">F10-F19</a> with common fourth character .6)</li> <li>· psychotic state ( <a href="#">F10-F19</a> with common fourth character .5)</li> </ul>
<b>Fxx8</b>	<b>Other mental and behavioural disorders</b>
<b>Fxx9</b>	<b>Unspecified mental and behavioural disorder</b>

## Appendix 2: Alcohol related deaths, definitions

As described in Appendix 1, there are two sets of figures available to describe alcohol related deaths, one used by Public Health England (the Alcohol Attributable Fractions, AAF) and one produced by the Office for National Statistics (ONS). Both of these methodologies define an 'alcohol related death' in terms of the 'underlying cause' (i.e. the cause which was identified by the attending doctor as having initiated the sequence of events that led to death) and do not consider the impact of other alcohol related conditions that may be mentioned on the death record. Both methodologies can be used to produce 'alcohol specific' figures (i.e. including those conditions which are entirely attributable to alcohol – see Appendix 1). As shown in Table 10, the ICD-10 codes (see Appendix 1) used to define each set of 'alcohol specific' figures overlap considerably, but are not identical.

**Table 10: Conditions used to calculate alcohol related deaths, Alcohol Attributable Fractions and Office for National Statistics definitions. Note that the AAF conditions used to define alcohol specific deaths are identical to those used to define alcohol specific hospital admissions**

Condition	Code	Included in ONS definition?	Included in AAF definition?
Alcohol-induced pseudo-Cushing's syndrome	E24.4		✓
Mental and behavioural disorders due to use of alcohol	F10*	✓	✓
Degeneration of nervous system due to alcohol	G31.2	✓	✓
Alcoholic polyneuropathy	G62.1	✓	✓
Alcoholic myopathy	G72.1		✓
Alcoholic cardiomyopathy	I42.6	✓	✓
Alcoholic gastritis	K29.2	✓	✓
Alcoholic liver disease	K70*	✓	✓
Chronic hepatitis, not elsewhere classified	K73*	✓	
Fibrosis and cirrhosis of liver	K74 (Excluding K74.3-K74.5 - Biliary)	✓	

	cirrhosis)		
Alcohol-induced acute pancreatitis	K85.2		✓
Alcohol-induced chronic pancreatitis	K86.0	✓	✓
Foetal alcohol syndrome (dysmorphic)	Q86.0		✓
Excess alcohol blood levels	R78.0		✓
Ethanol poisoning	T51.0		✓
Methanol poisoning	T51.1		✓
Toxic effect of alcohol, unspecified	T51.9		✓
Accidental poisoning by and exposure to alcohol	X45*	✓	✓
Intentional self-poisoning by and exposure to alcohol	X65*	✓	✓
Poisoning by and exposure to alcohol, undetermined intent	Y15*	✓	✓
Evidence of alcohol involvement determined by blood alcohol level	Y90		✓
Evidence of alcohol involvement determined by level of intoxication	Y91		✓
*include all four character codes falling under this three character code			

In addition to alcohol specific mortality, the AAF methodology can be used to produce figures for 'alcohol attributable' mortality. As described in detail in Appendix I, figures for 'alcohol attributable' conditions reflect the fact that alcohol is implicated in a proportion of a range of medical conditions when considered across the entire population. NWIS uses the AAF methodology used to produce figures for alcohol attributable mortality in Wales.

More detailed descriptions of the methodologies underlying these methods of producing alcohol related mortality figures can be found for the ONS at:

Office for National Statistics (2016) Alcohol-related deaths in the United Kingdom, registered in 2014. London, The Stationery Office

(<http://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/bulletins/alcoholrelateddeathsintheunitedkingdom/registeredin2014> )

Office for National Statistics (2016) User guide to mortality statistics. Newport, The Stationery Office

(<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/methodologies/userguidetomortalitystatistics>)

And for Alcohol Attributable Fractions at:

Public Health Wales Observatory (2014) Alcohol and health in Wales 2014, Technical Guide

([http://www2.nphs.wales.nhs.uk:8080/PubHObservatoryProjDocs.nsf/85c50756737f79ac80256f2700534ea3/65ed28d06e1f44fd80257d73002a4e75/\\$FILE/AlcoholAndHealthInWales\\_TechnicalGuide\\_v2a.pdf](http://www2.nphs.wales.nhs.uk:8080/PubHObservatoryProjDocs.nsf/85c50756737f79ac80256f2700534ea3/65ed28d06e1f44fd80257d73002a4e75/$FILE/AlcoholAndHealthInWales_TechnicalGuide_v2a.pdf))

Jones, L and Bellis, M (2013) Updating England-specific alcohol attributable fractions, Centre for Public Health, Liverpool John Moores University

(<http://www.cph.org.uk/wp-content/uploads/2014/03/24892-ALCOHOL-FRACTIONS-REPORT-A4-singles-24.3.14.pdf>)

Issues of comparability and consistency, both over time and between geographies, mean that both sets of figures are used

### Appendix 3: Hospital admissions for poisoning by illicit drugs, definitions

For details of the different ways to measure hospital admissions for substance misuse in general, see Appendix I. This Appendix deals specifically with the different ICD-10 codes (see Appendix I) that are used to produce figures for poisoning by illicit drugs that appear in this report.

ICD-10 codes for illicit drugs are found in a number of different categories across the coding system. A number of different methodologies have been used to identify hospital admission records related to the use of specific drugs and also to provide headline figures that can be meaningfully compared over different time periods and geographies.

The ICD-10 codes used to define hospital admissions related to illicit drugs in this report are shown in Table 11. Table 11 groups codes by substance and also presents the definitions used by NHS Digital, which produces comparable statistics for England.

**Table 11: ICD-10 codes used to define hospital admissions for poisoning by illicit drugs in the primary position. Full details of ICD-10 codes can be found at <http://apps.who.int/classifications/icd10/browse/2010/en>**

Measure	ICD-10 codes
Any illicit drug use	F11-F16, F18, F19, T40, T424, T436
Any mental/behavioural condition (NHS Digital definition)	F11-16, F18, F19
Any poisoning by illicit drugs (NHS Digital definition)	T400-T403, T405-T409, T436
Opioids	F11, T400-T403  (Note that although T404 includes opioids such as pethidine and tramadol which may be used illicitly, this code has been excluded in line with current NHS Digital methodology. This exclusion may be reviewed in future years. category not currently used, although includes pethidine and (since 2014 Tramadol – may adjust in future years)
Cannabinoids	F12, T407

Sedatives and hypnotics	F13, T408, T409
Cocaine	F14, T405
Other stimulants	F15, T436
Multiple drug use	F19
Benzodiazepines	T424

Note that these definitions of hospital admissions related to illicit drugs have been changed since the last report, therefore figures presented in this report may not be directly comparable to figures presented in previous reports.

## Appendix 4: Drug related deaths, definitions

The figures for drug related deaths presented in this report are taken from data gathered by the Office for National Statistics (ONS). For details of how mortality data are gathered by the ONS see Appendix 2. The ONS reports two measures of drug related death. ‘Deaths related to drug poisoning’ includes all deaths in which the underlying cause references an ICD-10 related to both legal and illegal drugs (not including alcohol and tobacco). ‘Deaths related to drug misuse’ is the subset of drug poisoning deaths which includes all deaths in which ICD-10 codes F11-F16 and F18-19 (i.e. those codes which specifically refer to illicit drugs) and the remaining deaths coded as drug poisoning where an illicit drug was mentioned on the death record<sup>33</sup>. The ICD-10 codes used by the ONS to define drug related deaths are shown in Table 7

‘illicit drugs’ are defined in terms of the 1971 Misuse of Drugs Act, which may be amended by the Home Secretary to add or remove drugs. For the 2013 figures for deaths from drug misuse, the ONS used a list of ‘illicit drugs’ that contained 20 newly controlled drugs compared to the previous year<sup>34</sup>. The ONS also recalculated the figures for deaths from drug misuse for previous years. This new methodology changed the number of deaths in Wales that are considered to be caused by drug misuse. For example, for 2012 the number of deaths rose from 131 using the old methodology to 135. Therefore, figures presented in this report may differ from figures presented in previous reports. A list of substances added to the definition of ‘illicit drugs’ for the ONS report on drug related deaths in 2013 is given in Table 8.

**Table 12: ICD-10 codes used by the ONS to define ‘drug related deaths’.**

Condition	Code
<i>All deaths in which the following conditions are noted as the underlying cause</i>	
Mental and behavioural disorders due to opioids, cocaine, sedatives or hypnotics, cocaine, other stimulants including caffeine, hallucinogens, multiple drug use	F11–F16,F19
<i>All deaths in which the following conditions are noted as the underlying cause AND a drug controlled by the 1971 Misuse of Drugs Act is noted on the death record</i>	
Mental and behavioural disorders due to volatile solvents	F18
Accidental poisoning by drugs, medicaments and biological substances	X40–X44
Intentional self-poisoning by drugs, medicaments and biological substances	X60–X64
Assault by drugs, medicaments and biological substances	X85
Poisoning by drugs, medicaments and biological substances, undetermined intent	Y10–Y14

Office for National Statistics (2015) Deaths Related to Drug Poisoning in England and Wales, 2014. London, The Stationery Office

Office for National Statistics (2014) Deaths related to drug poisoning in England and Wales. Quality and methodology information. Newport, The Stationery Office

As described above, the term “new psychoactive substances” has been legally defined by the European Union as a new narcotic or psychotropic drug, in pure form or in preparation, that is not scheduled under the Single Convention on Narcotic Drugs of 1961 or the Convention on Psychotropic Substances of 1971, but which may pose a public health threat comparable to that posed by substances listed in those conventions. (Council of the European Union decision 2005/387/JHA). In XXX, the Office for National Statistics published a list of substances mentioned on death certificates in England and Wales. These substances are listed in Table 13.

**Table 13: Substances listed by the Office for National Statistics as ‘new psychoactive substances’**

1-(Benzofuran-6-yl)-propan-2-amine	GHB
2-(1H-Indol-5-yl)-1-methylethylamine	Khat
4-Fluoroephedrine	Legal high
4-Fluoromethcathinone	Mephedrone
4-Methylamphetamine	Methiopropamine
4-Methylethcathinone	Methoxetamine
Alpha-methyltryptamine	Methylenedioxypropylone
BZP	Methylone
Cathinone	Synthetic cannabinoid
Desoxypipradrol	TFMPP
Fluoromethcathinone	

## Appendix 5: Confidence intervals

The following description and definition of Confidence Intervals as they are used in public health is taken from the Association of Public Health Observatories Technical Briefing 3<sup>24</sup>:

### Confidence intervals

A confidence interval is a range of values that is used to quantify the imprecision in the estimate of a particular value. Specifically, it quantifies the imprecision that results from random variation in the estimation of the value; it does not include imprecision resulting from systematic error (bias).

In many studies the source of this random variation is sampling. Even in the best designed studies there will be random differences between the particular sample group selected and the overall target population of inference.

Any measurement taken from the sample group therefore provides an imprecise estimate of the true population value. In public health many indicators are based on what can be considered to be complete data sets and not samples, e.g. mortality rates based on death registers. In these instances, the imprecision arises not as a result of sampling variation but of 'natural' variation. The indicator is considered to be the outcome of a stochastic process, i.e. one which can be influenced by the random occurrences that are inherent in the world around us. In such instances the value actually observed is only one of the set that could occur under the same circumstances. Generally, in public health, it is the underlying circumstances or process that is of interest and the actual value observed gives only an imprecise estimate of this 'underlying risk'.

The width of the confidence interval depends on three things:

- The sample size from which the estimate is derived (or population size if derived from a complete data set). Larger samples give more precise estimates with smaller confidence intervals.
- The degree of variability in the phenomenon being measured. Fortunately, observed phenomena often are known, or assumed, to follow certain probability distributions, such as the Poisson or Binomial. This allows us to express the amount of variability mathematically, and build it into the confidence interval formulae.
- The required level of confidence - this is an arbitrary value set by the analyst giving the desired probability that the interval includes the true value. In medicine and public health, the conventional practice is to use 95 per cent confidence but it is not uncommon to see alternatives. Within the APHO community 99.8 per cent confidence intervals are increasingly being used alongside 95 per cent intervals to reflect the control limits used in Statistical Process Control approaches. Increasing the level of confidence results in wider limits. For a given level of confidence, the wider the confidence interval, the greater the uncertainty in the estimate.

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<sup>24</sup> Association of Public Health Observatories (2008) Technical Briefing 3, Commonly Used Public Health Statistics and their Confidence Intervals, [www.apho.org.uk/resource/view.aspx?RID=48457](http://www.apho.org.uk/resource/view.aspx?RID=48457)

## Appendix 6: Calculating population rates of hospital admission, mortality and other public health indicators

*The following description and definition of how population rates are calculated and used in public health has been adapted from the Association of Public Health Observatories Technical Briefing 3<sup>25</sup>:*

The most basic measure used in public health is a count of events such as deaths or admissions to hospital. However, to properly investigate the distribution of disease and risk factors and to make comparisons between different populations, the population at risk in which the count was observed must also be taken into consideration. Dividing the count of events by the population at risk and multiplying by given number (for example, 100,000) gives a 'crude rate' of these events within a population that can be compared between areas which may have very different population sizes. In particular, disease and mortality rates may vary widely by age. Such variation complicates any comparisons made between two populations that have different age structures. For example, consider two areas A and B with equal-sized populations and identical crude all-age death rates. At first glance they appear to have a similar mortality experience.

Suppose, however, that area A has a younger age structure than area B. Given that mortality rates increase with age, one would expect the older population in area B to experience more deaths. The fact that the two have identical rates means that the younger population in area A must have a relatively worse mortality experience.

The most comprehensive way of comparing the disease experience of two populations is to present and compare their age-specific rates. However, when the number of populations being compared increases, the volume of data that needs to be considered quickly becomes unmanageable. What is needed is a single, easily interpreted, summary figure for each population that is adjusted to take into account its age structure. Such summary figures are calculated using age standardisation methods.

One method of calculating a summary figure is 'direct standardisation'. The age-specific rates of the subject population are applied to the age structure of the standard population. This gives the overall rate that would have occurred in the subject population if it had the standard age-profile.

The European Standard Population (ESP) is often used for direct standardisation. This is a hypothetical population structure which does not change and is the same for both genders. This report uses the 2013 ESP, published by Eurostat. Detailed information and guidance on the 2013 ESP has been published by the UK's Office for National Statistics and can be found here: <http://www.ons.gov.uk/ons/guide-method/user-guidance/health-and-life-events/revised-european-standard-population-2013--2013-esp/index.html>.

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<sup>25</sup> Association of Public Health Observatories (2008) Technical Briefing 3, Commonly Used Public Health Statistics and their Confidence Intervals, [www.apho.org.uk/resource/view.aspx?RID=48457](http://www.apho.org.uk/resource/view.aspx?RID=48457)

## Appendix 7: Problem drug use: definitions and estimations of prevalence

'Problem drug use' (PDU) is an indicator reported by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) on the basis of national reports. The definition of PDU used for the estimates presented in this report is 'injecting drug use or long duration / regular use of opioids, cocaine and/or amphetamines'. This definition specifically includes regular or long-term use of prescribed opioids such as methadone but does not include their rare or irregular use nor the use of other drugs, such as ecstasy or cannabis<sup>26</sup>.

Estimating the prevalence of PDU presents considerable challenges, since a substantial proportion of those engaging in what is a heavily socially stigmatised activity may not be known to any services and therefore there may be no record of their use available. To address these issues a number of statistical techniques have been developed. The figures described in this report were derived from a study using the 'capture-recapture' method, a well-established approach that has been used to generate previous PDU estimates for Wales and the UK. Capture-recapture methods involve modelling interactions between datasets containing the substance misuse population that is 'visible' to health, treatment or criminal justice services to generate statistical estimates for the 'hidden' population who are not in contact with any service. The source datasets used were records of police arrests, engagement with drug intervention programmes managed by probation services, assessments by substance misuse treatment, hospital admissions and accessing statutory, voluntary and pharmacy needle and syringe programmes (NSPs). Estimates of PDU for Wales prior to those presented in last year's report have used three data sets (police arrests, probation assessment and treatment referrals) and are therefore not comparable to the estimates presented in this report.

The traditional statistical method to estimate how many drug users have not been 'captured' on any database is via the use of loglinear analyses, a technique which typically fits a series of different models to the data. The model deemed optimal via some criteria is used to obtain a 'maximum likelihood' estimate of 'uncaptured' drug users.

Whilst this approach is still used by many researchers, there is current debate within the field of drug misuse estimation over the possibility that recently developed Bayesian techniques for population estimation, which calculate an estimate of the uncaptured drug users using an average across all models, and thus formally accounting for model uncertainty within the population estimate<sup>27</sup>. The figures presented in this report are those derived from applying Bayesian techniques to the data.

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<sup>26</sup> EMCDDA (2010), Statistical bulletin 2010: Problem drug use indicator – overview. Lisbon, EMCDDA <http://www.emcdda.europa.eu/www/advancedsearch.cfm>

<sup>27</sup> King R, Bird SM, Overstall A, Hay G, Hutchinson SJ. Injecting drug users in Scotland, 2006: Listing, number, demography, and opiate-related death-rates. *Addict Res Theory* 2013; 21(3):235-246