Alcohol Attributable Hospital Admissions in Bath and North East Somerset

February 2012
Contents

Key findings........................................................................................................................................5

1. Introduction....................................................................................................................................7

Part 1: Alcohol specific hospital admissions......................................................................................9

2. Analysis by Top Tier Local Authority in the South West ..............................................................10
3. Analysis by deprivation ..................................................................................................................10
4. Analysis of individuals..................................................................................................................11
5. Analysis by cause of admission ....................................................................................................12
6. Analysis by admission method ......................................................................................................15
7. Repeat admissions..........................................................................................................................15

Part 2: Alcohol attributable hospital admissions ..............................................................................17

8. Analysis by Top Tier Local Authority in the South West ..............................................................18
9. Analysis by deprivation ..................................................................................................................19
10. Analysis of individuals................................................................................................................19
11. Analysis by cause of admission ...................................................................................................21
12. Analysis by admission method ....................................................................................................23
13. Repeat admissions........................................................................................................................24

14. Discussion and conclusions.........................................................................................................26

Glossary ...............................................................................................................................................28
Related resources ..................................................................................................................................29
Appendix 1: Technical Notes ............................................................................................................30
Appendix 2: Additional tables............................................................................................................32
Key findings

General

In 2009/10, 7,629 individuals in Bath and North East Somerset were admitted to hospital either wholly or partly due to alcohol.

This was equivalent to 3,023 alcohol attributable admissions, once alcohol attributable fractions were applied.

The 3,023 alcohol attributable hospital admissions were made up of 714 wholly due to alcohol (alcohol specific) and 2,309 partially due to alcohol (alcohol related).

Between 2002/03 and 2009/10 alcohol attributable admissions increased by 136%; the highest percentage rise in the South West. Trend analysis shows clear evidence of an increasing trend over the time period.

Alcohol attributable hospital admissions in Bath and North East Somerset, 2009/10, at a glance

Note: Figures have been rounded so the sums may not equal the totals shown.

Source: Data: Hospital Episode Statistics, 2009/10, Department of Health; Analysed by: the South West Public Health Observatory

Alcohol specific admissions

- The overall rate of alcohol specific hospital admissions for Bath and North East Somerset in 2009/10 was 399 per 100,000 population (standardised for age and sex). This is statistically significantly lower than the South West rate.

- People living in the most deprived areas were over four times more likely to be admitted to hospital for alcohol specific conditions than those living in the least deprived areas.

- The 714 alcohol specific hospital admissions completed in 2009/10 involved 503 individuals, 65.8% of whom were men and 34.2% women.

- The main causes of alcohol specific admissions were:
  - mental and behavioural disorders due to use of alcohol (62.6%)
  - alcoholic liver disease (18.3%), and
  - ethanol poisoning (14.8%).
- More alcohol specific admissions were via emergency (84.0%) than elective (15.0%) or any other method of admission.
- 19.8% of individuals admitted for alcohol specific hospital admissions had repeat admissions during 2009/10.

**Alcohol attributable admissions**

- In Bath and North East Somerset, the overall rate of alcohol attributable hospital admissions for 2009/10 was **1,386 per 100,000 population** (standardised for age and sex). This is statistically significantly lower than the South West rate.
- The rate of alcohol attributable admissions in the most deprived area was over twice that of the least deprived area.
- 58.7% of alcohol attributable admissions were in people aged 60 and over.
- The main causes of alcohol attributable admissions were:
  - hypertensive diseases (35.8%)
  - cardiac arrhythmias (18.2%)
  - mental and behavioural disorders due to use of alcohol (14.8%)
  - epilepsy and status epilepticus (7.3%), and
  - alcoholic liver disease (4.3%).
- More alcohol attributable admissions were via emergency (59.9%) than elective (37.1%) or any other method of admission.
- 28.4% of individuals admitted for alcohol attributable admissions had repeat admissions during 2009/10.
1. Introduction

This report examines patterns of hospital admission due to alcohol in Bath and North East Somerset. It analyses admissions completed in 2009/10 by age, sex, cause and deprivation, and considers whether the admissions were elective or emergency, and repeat. Alcohol specific and alcohol attributable admissions are discussed separately.

The SWPHO can provide, on request, to authorised bodies (currently Primary Care Trusts), admissions data that could be used for further analysis at smaller geographical areas and by geodemographic segmentation tools (such as ‘People and Places’).

1.1 Background and context

There are over a million hospital admissions due to alcohol each year in England. Until recently rates of alcohol attributable hospital admissions were measured as part of the National Indicator set (NI39). Rates of hospital admissions remain a valid indicator of harm and are a useful outcome measure of alcohol prevention and treatment interventions and programmes.

1.2 Key definitions

Calculating alcohol attributable hospital admissions is complex. The following definitions will help you understand the analysis in this report:

- **Alcohol specific harm** – wholly caused by the use of alcohol.
- **Alcohol related harm** – partly caused by the use of alcohol.
- **Alcohol attributable admissions** – calculated by applying ‘alcohol attributable fractions’ to admissions for alcohol specific and alcohol related harm combined.
- **Alcohol attributable fractions (AAF)s** – are applied to each hospital admission to measure the estimated contribution of alcohol to that admission. The sum of the AAFs gives the number of admissions due to alcohol. AAFs in this report have been estimated for different causes and then by the sex and age of the person admitted. (For further details see Appendix 1).
- **Individuals admitted** – individuals who had one or more hospital admission for alcohol attributable harm. Each individual only counted once.
- **All admissions** – includes an individual’s first admission as well as any subsequent admissions. Multiple admissions counted.

Figure 1.0 gives some examples of applying AAFs to hospital admissions. Admissions due to ethanol poisoning are wholly attributable to alcohol so each admission has an AAF of 1.0. However, other causes shown are only partly attributable to alcohol, so have AAFs of less than 1.0. This is why, in this report, the number of alcohol attributable admissions is less than the number of individuals admitted due to alcohol.
Figure 1.0: Examples of calculating the equivalent of two alcohol attributable hospital admissions using AAFs

Source: Adapted from original diagram: Verity Bellamy et al, East Midlands Public Health Observatory

See Appendix 1 for more information about calculating alcohol attributable admissions.
Part 1: Alcohol specific hospital admissions

This section of the report describes alcohol specific admissions. These are admissions that are wholly caused by alcohol.
2. **Analysis by Top Tier Local Authority in the South West**

There are 16 Top Tier Local Authorities in the South West. However, due to small numbers and subsequent indicator reliability, we have combined results for Cornwall and the Isles of Scilly.

Figure 2.1 shows the rates of alcohol specific hospital admissions completed during 2009/10 by Local Authority area. The rate for Bath and North East Somerset was 399 per 100,000 population. This is statistically significantly lower than the South West rate of 456 per 100,000 population.

*Figure 2.1: Directly standardised rates of alcohol specific admissions, per 100,000 population, South West Top Tier Local Authorities, 2009/10*

![Graph showing rates of alcohol specific admissions by Local Authority in the South West]

Note: Cornwall and the Isles of Scilly have been combined due to small numbers.
Source: Data: Hospital Episode Statistics, 2009/10, Department of Health and ONS mid-year (2009) population estimates; Analysed by: South West Public Health Observatory

3. **Analysis by deprivation**

*People living in the poorest neighbourhoods will, on average, die seven years earlier than people living in the richest.*


Analysis using deprivation is important because it assists in understanding the association between the deprivation of an area and the health of the residents.

Figure 3.1 shows the relationship between deprivation and alcohol specific admissions in Bath and North East Somerset. People living in the most deprived quintile are over four times more likely to be admitted to hospital for alcohol specific...
conditions than those in the least deprived quintile. Also, rates in the two most deprived quintiles are statistically significantly higher than in the three less deprived quintiles.

**Figure 3.1: Directly standardised rates of alcohol specific admissions, per 100,000 population, by regional Index of Multiple Deprivation (IMD) quintile, Bath and North East Somerset, 2009/10**

Source: Data: Hospital Episode Statistics, 2009/10, Department of Health and IMD 2010, Communities and Local Government; Analysed by: South West Public Health Observatory

### 4. Analysis of individuals

As well as examining the number of admissions, this report also analyses individuals admitted. Any individual could have had more than one hospital admission in 2009/10 but is only counted once in the individuals’ analysis. As all alcohol specific admissions have an AAF=1, then the total number of alcohol specific admissions will always be higher than the number of individuals admitted.

The method for studying individuals involves choosing their main hospital admission for the analysis. See Appendix1 for more information about calculating individual admissions.

Figure 4.1 gives a breakdown of alcohol specific admissions by age and sex. It shows that:

- 65.8% of alcohol specific admissions are men and 34.2% women
- men aged 20–24 have relatively high levels of admission but the peak is in those aged 40–49
- the peak for women is in the 15–19 age group.
5. **Analysis by cause of admission**

5.1 **Hospital admissions by cause**

Table 5.1 and Figure 5.1 show alcohol specific admissions by cause. The main causes were:

- mental and behavioural disorders due to use of alcohol (62.6%)
- alcoholic liver disease (18.3%), and
- ethanol poisoning (14.8%).
Figure 5.1: Alcohol specific admissions by cause, Bath and North East Somerset, 2009/10

Table 5.1: Alcohol specific admissions by cause, Bath and North East Somerset, 2009/10

Note: We have suppressed small numbers in line with Hospital Episode Statistics guidelines. Therefore, the numbers in the columns, when added, may not equal the totals shown.

5.2 Hospital admissions by cause and sex

Figures 5.2 and 5.3 break down alcohol specific admissions by cause and sex:

- mental and behavioural disorders due to use of alcohol was the most common cause for both men and women (64.5% and 58.9% respectively)
- a higher proportion of women were admitted due to ethanol poisoning
- a higher proportion of men were admitted due to alcoholic liver disease.

**Figure 5.2: Breakdown of alcohol specific hospital admissions, males, Bath and North East Somerset, 2009/10**

![Bar chart showing cause of admission for male admissions]

Source: Data: Hospital Episode Statistics, 2009/10, Department of Health; Analysed by: South West Public Health Observatory

**Figure 5.3: Breakdown of alcohol specific hospital admissions, females, Bath and North East Somerset, 2009/10**

![Bar chart showing cause of admission for female admissions]

Source: Data: Hospital Episode Statistics, 2009/10, Department of Health; Analysed by: South West Public Health Observatory
6. **Analysis by admission method**

Table 6.1 shows alcohol specific admissions by admission method. The majority of alcohol specific admissions were emergency admissions (84.0%).

The method for studying individuals involves choosing their main hospital admission for the analysis (See Appendix 1). Using this method 89.5% of all individuals were admitted via an emergency route.

**Table 6.1: Admission method for alcohol specific hospital admissions in Bath and North East Somerset, 2009/10**

<table>
<thead>
<tr>
<th>Admission method</th>
<th>All alcohol specific admissions</th>
<th>Percentage of alcohol specific admissions</th>
<th>Main admission for each individual</th>
<th>Percentage of all individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency</td>
<td>600</td>
<td>84.0</td>
<td>450</td>
<td>89.5</td>
</tr>
<tr>
<td>Elective</td>
<td>107</td>
<td>15.0</td>
<td>(48-52)</td>
<td>(9.5-10.3)</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>1.0</td>
<td>(1-5)</td>
<td>(0.2-1.0)</td>
</tr>
<tr>
<td><strong>All admissions</strong></td>
<td><strong>714</strong></td>
<td><strong>100.0</strong></td>
<td><strong>503</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Note: Ranges have been given in place of small numbers, which would otherwise need to be suppressed in line with Hospital Episode Statistics guidance.

*Source: Data: Hospital Episode Statistics, 2009/10, Department of Health; Analysed by: South West Public Health Observatory*

Breaking down method of admission by cause:

- mental and behavioural disorders due to use of alcohol accounted for 66% of emergency and 47% of elective admissions
- alcoholic liver disease was the leading cause of elective admissions at 51%, and accounted for 12% of emergency admissions
- ethanol poisoning accounted for 18% of emergency admissions.

7. **Repeat admissions**

In this report, we have analysed repeat admissions (counting all admissions for the same individual completed in 2009/10) rather than the more commonly used readmissions (that is ‘Emergency Readmission within 28 days of Discharge’ or ‘Emergency Readmission within 60 days of Discharge’). This gives us a fuller count of the number of times any one individual is admitted.

In Bath and North East Somerset in 2009/10:

- 80.2% of individuals admitted for alcohol specific conditions had only one admission
- 16.3% had 2–3 admissions, and
- 1.4% had 6 admissions or more.
Figure 7.1: Repeat admissions for alcohol specific conditions, percentage of individuals by number of admissions, Bath and North East Somerset, 2009/10

Source: Data: Hospital Episode Statistics, 2009/10, Department of Health; Analysed by: South West Public Health Observatory
Part 2: Alcohol attributable hospital admissions

This section of the report describes alcohol attributable hospital admissions, that is, alcohol specific and alcohol related admissions combined.
8. **Analysis by Top Tier Local Authority in the South West**

There are 16 Top Tier Local Authorities in the South West. However, due to small numbers and subsequent indicator reliability, we have combined results for Cornwall and the Isles of Scilly.

Figure 8.1 shows the rates of alcohol attributable hospital admissions completed during 2009/10 by Local Authority area. The rate for Bath and North East Somerset was 1,386 per 100,000 population. This is statistically significantly lower than the South West rate of 1,614 per 100,000 population.

**Figure 8.1: Directly standardised rates of alcohol attributable hospital admissions, per 100,000 population, South West Top Tier Local Authorities, 2009/10**

Note: Cornwall and the Isles of Scilly have been combined due to small numbers.

Source: Data: Hospital Episode Statistics, 2009/10; Department of Health and ONS mid-year (2009) population estimates. Analysed by: South West Public Health Observatory

The North West Public Health Observatory (NWPHO) provides rates of alcohol attributable admissions by Local Authority in its Local Alcohol Profiles for England (LAPE). Table A1 (Appendix 2) shows the trend in rates of alcohol attributable hospital admissions for Top Tier Local Authorities in the South West between 2002/03 and 2009/10, using LAPE data. This shows that Bath and North East Somerset had the highest percentage increase in the South West, at 136%, during this time. Trend analysis shows clear evidence of an increasing trend over the time period. See Appendix 1 for further information on the analysis of trends.

All other analyses in this report use 2009/10 data obtained directly from the Department of Health.
9. Analysis by deprivation

Figure 9.1 shows the relationship between alcohol attributable admissions and deprivation in Bath and North East Somerset. People living in the most deprived quintile are statistically significantly more likely to be admitted to hospital for alcohol attributable conditions than all the other quintiles. The rate of admissions for the most deprived quintile was over twice that of the least deprived quintile.

**Figure 9.1: Directly standardised rates of alcohol attributable admissions, per 100,000 population, by regional Index of Multiple Deprivation (IMD) quintile, Bath and North East Somerset, 2009/10**

Source: Data: Hospital Episode Statistics, 2009/10, Department of Health and IMD 2010, Communities and Local Government; Analysed by: South West Public Health Observatory

10. Analysis of individuals

As well as examining the number of admissions, this report also analyses individuals admitted. Any individual could have had more than one hospital admission in 2009/10 but is only counted once in the individuals’ analysis.

The number of alcohol attributable hospital admissions may be higher or lower than the number of individuals actually admitted to hospital due to alcohol. This is due to the application of alcohol-attributable fractions (AAF), which are described in the glossary.

The method for studying individuals involves choosing their main hospital admission for the analysis. See section 1.2 and Appendix 1 for more information on calculating alcohol attributable admissions and about calculating individual admissions.

Figure 10.1 shows the breakdown by age and sex of individuals admitted with an alcohol attributable condition during 2009/10 in Bath and North East Somerset.
Figure 10.2 shows the breakdown by age and sex of alcohol attributable hospital admissions in Bath and North East Somerset during the same period.

**Figure 10.1: Individuals admitted who contributed to alcohol attributable hospital admissions, by age and sex, Bath and North East Somerset, 2009/10**

**Figure 10.2: Alcohol attributable admissions, by age and sex, Bath and North East Somerset, 2009/10**

Source: Data: Hospital Episode Statistics, 2009/10, Department of Health; Analysed by: South West Public Health Observatory
This analysis shows that:

- 7,629 individuals contributed to alcohol attributable admissions during 2009/10, 53.9% of whom were women (Figure 10.1).

- Although females made up a larger proportion of the individuals admitted (53.9%), they only contributed 38.6% to alcohol attributable hospital admissions once age- and sex-specific AAFs were applied (Figure 10.2). One of the reasons for this is that men contribute more to alcohol specific admissions than women (see Figure 4.1).

- The majority of alcohol attributable hospital admissions happened in later life: 58.7% were people aged 60 and over.

- Admissions for men peaked in the 60–64 age group (8.1% of all admissions) and for women in the 85 and over age group (6.0%).

- The age distribution of individuals admitted for alcohol specific conditions (see Figure 4.1) was younger than the age distribution for alcohol attributable admissions (Figure 10.1): 20.1% of individuals admitted for alcohol specific admissions were aged over 60 compared with 73.4% of alcohol attributable hospital admissions. This reflects both the age profile in the South West, which has a higher than average older population, and the age profile of the various conditions included in alcohol attributable admissions.

### 11. Analysis by cause of admission

#### 11.1 Hospital admissions by cause

Figure 11.1 and Table 11.1 show hospital admissions by cause. Main causes were:

- hypertensive diseases (35.8%)
- cardiac arrhythmias (18.2%)
- mental and behavioural disorders due to use of alcohol (14.8%).

*Figure 11.1: Main causes of alcohol attributable admissions, Bath and North East Somerset, 2009/10*

Source: Data: Hospital Episode Statistics, 2009/10, Department of Health; Analysed by: South West Public Health Observatory
Table 11.1: Main causes of alcohol attributable hospital admissions in Bath and North East Somerset, 2009/10

<table>
<thead>
<tr>
<th>Cause</th>
<th>Alcohol attributable admissions</th>
<th>Percentage of alcohol attributable admissions</th>
<th>Main admission for each individual</th>
<th>Percentage of all Individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertensive diseases</td>
<td>1,082</td>
<td>35.8</td>
<td>3,862</td>
<td>50.6</td>
</tr>
<tr>
<td>Cardiac arrhythmias</td>
<td>551</td>
<td>18.2</td>
<td>1,367</td>
<td>17.9</td>
</tr>
<tr>
<td>Mental and behavioural disorders due to use of alcohol</td>
<td>447</td>
<td>14.8</td>
<td>345</td>
<td>4.5</td>
</tr>
<tr>
<td>Epilepsy and Status epilepticus</td>
<td>221</td>
<td>7.3</td>
<td>263</td>
<td>3.4</td>
</tr>
<tr>
<td>Alcoholic liver disease</td>
<td>131</td>
<td>4.3</td>
<td>56</td>
<td>0.7</td>
</tr>
<tr>
<td>Ethanol poisoning</td>
<td>106</td>
<td>3.5</td>
<td>89</td>
<td>1.2</td>
</tr>
<tr>
<td>Fall injuries</td>
<td>94</td>
<td>3.1</td>
<td>743</td>
<td>9.7</td>
</tr>
<tr>
<td>Intentional self-harm/Event of undetermined intent</td>
<td>84</td>
<td>2.8</td>
<td>162</td>
<td>2.1</td>
</tr>
<tr>
<td>Malignant neoplasm of lip, oral cavity and pharynx</td>
<td>58</td>
<td>1.9</td>
<td>20</td>
<td>0.3</td>
</tr>
<tr>
<td>Malignant neoplasm of breast</td>
<td>34</td>
<td>1.1</td>
<td>141</td>
<td>1.8</td>
</tr>
<tr>
<td>Malignant neoplasm of oesophagus</td>
<td>24</td>
<td>0.8</td>
<td>30</td>
<td>0.4</td>
</tr>
<tr>
<td>Assault</td>
<td>22</td>
<td>0.7</td>
<td>74</td>
<td>1.0</td>
</tr>
<tr>
<td>Chronic pancreatitis (alcohol induced)</td>
<td>18</td>
<td>0.6</td>
<td>8</td>
<td>0.1</td>
</tr>
<tr>
<td>Spontaneous abortion</td>
<td>17</td>
<td>0.6</td>
<td>75</td>
<td>1.0</td>
</tr>
<tr>
<td>Chronic hepatitis, not elsewhere classified and Fibrosis and cirrhosis of liver</td>
<td>16</td>
<td>0.5</td>
<td>10</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Source: Data: Hospital Episode Statistics, 2009/10, Department of Health: Analysed by: South West Public Health Observatory

11.2 Hospital admissions by cause and sex

Figures 11.2 and 11.3 break down alcohol attributable hospital admissions by age and sex:

- there were similar patterns of admission for both sexes
- hypertensive diseases were the main cause for both men and women (37.8% and 32.6% respectively)
- a higher proportion of women’s admissions were due to ethanol poisoning (5.7% for women, 2.2% for men)
- a higher proportion of men’s admissions were due to alcoholic liver disease (5.5% for men, 2.4% for women).
Figure 11.2: Main causes of alcohol attributable hospital admissions in males, Bath and North East Somerset, 2009/10

Source: Data: Hospital Episode Statistics, 2009/10, Department of Health; Analysed by: South West Public Health Observatory

Figure 11.3: Main causes of alcohol attributable hospital admissions in females, Bath and North East Somerset, 2009/10

Source: Data: Hospital Episode Statistics, 2009/10, Department of Health; Analysed by: South West Public Health Observatory

12. Analysis by admission method

Table 12.1 gives a breakdown of alcohol attributable hospital admissions by admission method. The majority of alcohol attributable admissions were emergency admissions (59.9%).

The method for studying individuals involves choosing their main hospital admission for the analysis (See Appendix 1). Using this method 58.1% of all individuals were admitted via an emergency route.
Table 12.1: Admission method for alcohol attributable hospital admissions in Bath and North East Somerset, 2009/10

<table>
<thead>
<tr>
<th>Admission method</th>
<th>Alcohol attributable admissions</th>
<th>Percentage of all alcohol attributable admissions</th>
<th>Main admission for each individual</th>
<th>Percentage of all individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency</td>
<td>1,810</td>
<td>59.9</td>
<td>4,430</td>
<td>58.1</td>
</tr>
<tr>
<td>Elective</td>
<td>1,123</td>
<td>37.1</td>
<td>3,066</td>
<td>40.2</td>
</tr>
<tr>
<td>Other</td>
<td>91</td>
<td>3.0</td>
<td>133</td>
<td>1.7</td>
</tr>
<tr>
<td>All admissions</td>
<td>3,023</td>
<td>100.0</td>
<td>7,629</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Data: Hospital Episode Statistics, 2009/10, Department of Health; Analysed by: South West Public Health Observatory

The main causes of emergency admissions were:

- hypertensive diseases (23%)
- mental and behavioural disorders due to use of alcohol (22%), and
- cardiac arrhythmias (20%).

Hypertensive diseases accounted for 56% and cardiac arrhythmias 14% of elective admissions.

13. Repeat admissions

In this report, we have analysed repeat admissions (counting all admissions for the same individual completed in 2009/10) rather than the more commonly used readmissions (that is ‘Emergency Readmission within 28 days of Discharge’ or ‘Emergency Readmission within 60 days of Discharge’). This gives us a fuller count of the number of times any one individual is admitted.

In Bath and North East Somerset in 2009/10:

- 71.6% of individuals who contributed to an alcohol attributable admission had only one admission.
- 23.6% had 2–3 admissions
- 0.4% had 11 or more admissions.
Figure 13.1: Repeat admissions for alcohol attributable conditions, percentage of individuals by number of admissions, Bath and North East Somerset, 2009/10

Source: Data: Hospital Episode Statistics, 2009/10, Department of Health; Analysed by: South West Public Health Observatory
14. Discussion and conclusions

This report has provided detailed evidence about the rate and complexity of alcohol attributable hospital admissions in Bath and North East Somerset during 2009/10. It has shown that despite lower rates than many other areas across England and the South West there are significant and serious issues to address regarding alcohol related health harms and hospital admissions.

A number of key points of interest have been identified and include:

1. The overall rate of alcohol attributable hospital admissions in 2009/10 was 1,386 per 100,000 population (standardised for age and sex); statistically significantly lower than the South West rate.

2. Over the time period 2002/03 to 2009/10 there has been a significant rise in admissions for alcohol attributable conditions (136%).

3. The rates of both alcohol attributable and alcohol specific hospital admissions are significantly higher in more deprived areas.

Alcohol specific hospital admissions:

4. The 714 alcohol specific hospital admissions in 2009/10 involved 503 individuals, 65.8% of which were males and 34.2% females. Of these individuals 18.9% were aged under 25 years.

5. Mental and behavioural disorders due to use of alcohol was the leading cause of alcohol specific hospital admissions, causing 62.6% of specific admissions, followed by alcoholic liver disease (18.3%) and ethanol poisoning (14.8%).

Alcohol attributable hospital admissions:

6. Of the 3,023 alcohol attributable hospital admissions in 2009/10, 61.4% were to males and 38.6 % were to females; 58.7% were to people aged 60 years or over.

7. Hypertensive diseases were the underlying cause for 35.8% of alcohol attributable hospital admissions followed by cardiac arrhythmias (18.2%), mental and behavioural disorders due to use of alcohol (14.8%), epilepsy and status epilepticus (7.3%), and alcoholic liver disease (4.3%).

Understanding these and other variations is a key step in enabling those responsible for designing and implementing alcohol services and interventions to target resources appropriately to achieve good outcomes and best value.

The Department of Health has identified a number of high impact changes that can be employed to achieve a reduction in hospital admissions in the short, medium and long term. These include employing Alcohol Health Workers and Alcohol Liaison Nurses in all acute hospitals to manage patients with alcohol problems and to liaise with community services. This approach has been shown to prevent unnecessary admissions, encourage better patient education and improve clinical practice.

The large scale provision of alcohol Identification and Brief Advice is recommended as an evidence based approach to addressing increasing and higher risk drinking.
This cost effective intervention can be delivered in a range of settings including primary care, hospital Emergency Departments and specialist settings such as fracture clinics and sexual health clinics.

Improvements to the capacity and effectiveness of specialist structured treatment for dependent drinkers are likely to provide the most immediate reduction in alcohol attributable hospital admissions. Work in this area can be further advanced by improvements to alcohol treatment pathways and waiting times.

These and other interventions should be considered within the context of local need, outcome priorities and existing service provision.

As health and other public services move through a period of significant change, particularly in relation to the commissioning of services, it is vital that intelligence and evidence such as that presented in this report is used to enhance efforts to reduce alcohol attributable hospital admissions and the significant health harms caused by alcohol misuse.
Glossary

**Alcohol attributable fractions (AAF):** values ranging from 0 to 1, used to show how much alcohol contributes to a health outcome. They are calculated for conditions for which there is a known causal association with alcohol.

**Alcohol attributable hospital admission:** a hospital admission for which alcohol has been identified as a contributory factor. It could either be an alcohol related hospital admission or alcohol specific hospital admission.

**Alcohol specific hospital admission:** a hospital admission for which the cause of admission is classified as wholly related or specifically related to alcohol, such as ethanol poisoning and alcoholic liver disease. The alcohol attributable fraction is 1.

**Alcohol related hospital admission:** a hospital admission for which the cause of admission is related to alcohol use, among other factors, e.g. hypertensive disease and cardiac arrhythmias. The alcohol attributable fraction here is less than 1.

**Confidence intervals:** a range of values round a point estimate that shows where the true value is likely to lie.

**Crude rates:** a measure of overall frequency which has not been adjusted for factors which might have influenced the rate. It is normally calculated by dividing the number of observations/events by the appropriate population. It normally refers to a specific period of time.

**Deprivation quintile:** a division of an area into five parts using deprivation measures such as income, crime, housing etc.

**Hospital Episode Statistics (HES):** the national statistical data warehouse for England of the care provided by NHS hospitals and for NHS hospital patients treated elsewhere. Each HES record is classified using the International Classification of Disease, 10th Revision (ICD10). This enables each record to be identified according to the type of disease or other health condition. Each record may have more than one ICD10 code.

**International Classification of Disease, 10th Revision (ICD10):** the international standard diagnostic classification for all general epidemiological and clinical use, and many health management purposes. For further details on the ICD10 classification visit [http://www.who.int/classifications/icd/en/](http://www.who.int/classifications/icd/en/).

**Lower Super Output Area (LSOA):** area that has a minimum population of 1,000, with an overall mean of 1,500. There are 34,000 LSOAs in England and Wales.

**Middle Super Output Area (MSOA):** area with a minimum population of 5,000 and overall mean of 7,200. Built from groups of LSOAs and constrained by the Local Authority boundaries of 2003, there are 7,000 MSOAs in England and Wales.

**People and Places Segmentation Tool:** a geodemographic tool that uses income data to classify people into clusters.

**Standardised rates:** a rate in which the calculation accounts for particular underlying characteristics of the population, such as age and sex. This makes it suitable for comparing areas with different population structures.
Alcohol Attributable Hospital Admissions (NI39) in the South West (South West Public Health Observatory, 2010)

Local Alcohol Profiles for England (LAPE) (North West Public Health Observatory)

The Alcohol Learning Centre
Online resources for commissioners, planners and practitioners working to reduce alcohol related harm. This includes free and accredited Alcohol Identification and Brief Advice e-learning packages. Available from: http://www.alcohollearningcentre.org.uk/

Signs for Improvement – commissioning interventions to reduce alcohol related harm (Department of Health, 2010)

National Drug Treatment Monitoring System
Statistics relating to people in structured alcohol treatment. Available from: https://www.ndtms.net/
Appendix 1: Technical Notes

Applying Alcohol Attributable Fractions (AAFs)

The rate of alcohol attributable admissions per 100,000 population is calculated by applying alcohol attributable fractions (AAFs) to Hospital Episode Statistics (HES). AAFs are age- and sex-specific. Table A2 (Appendix 2) lists the AAFs used in this report.

To calculate admissions, the AAFs are applied to the HES records. Each individual HES record is identified and examined to see if any of the ICD10 codes are categorised as alcohol attributable. Any record without an alcohol attributable ICD10 code is excluded, while those with one or more are included in the analysis.

For records with more than one alcohol attributable ICD10 code, the ICD10 code with the largest AAF is used. If a record exists that has two or more ICD10 codes of the same AAF proportion, the first diagnostic code is used. Finally, the AAFs are totalled to give an estimate of admissions. There are no estimates of AAFs for children under the age of 16, except for alcohol specific diagnoses, that is, where alcohol has specifically caused the condition (AAF=1).

Crude and directly standardised rates were calculated for 2009/10 using the Office for National Statistics (ONS) mid-year 2009 population estimates as the denominator and for age- and sex-standardisation to the European standard population.

Index of Multiple Deprivation

The analysis by deprivation is based on the Index of Multiple Deprivation 2010 (IMD 2010) which compares areas based on their level of deprivation. The index uses measures of different aspects of deprivation, which are weighted and combined to give each area an overall deprivation score.

Deprivation quintiles are created by applying a deprivation value to each Lower Super Output Area (LSOA) across the South West and then ordering the areas by their deprivation values. Quintiles are built up by applying the population to each LSOA to ensure a fifth of the population falls into each quintile.
Analysis of individuals

As well as estimating the number of alcohol attributable hospital admissions, this report estimates the number of individuals who had one or more hospital admissions for alcohol attributable harm in 2009/10.

To estimate the number of individuals, and provide further analyses, such as by admission method and cause, this method selects the main hospital admission for each individual.

Method

1. Hospital episodes relating to the same individual were linked using the pseudo-HESID field (Hospital Episode Statistics ID). The pseudo-HESID field uniquely identifies individual patients.

2. For each individual, all HES records with an alcohol attributable fraction (AAF) of greater than zero were identified.

3. Admissions with the largest AAF were selected.

4. If there were two or more episodes with the same high AAF then the episode with the earliest start date was selected.

5. If there were still two or more episodes, the episode where the alcohol attributable cause was in the lowest diagnostic position was selected.

This method is based on that developed by the North West Public Health Observatory for calculating person based analysis. For further information see Local Alcohol Profiles for England, User Guide version 1, August 2011, accessed 15 November 2011, http://www.lape.org.uk/downloads/Lape_guidance_and_methods.pdf

Analysis of trends

Testing for the presence of trend has been performed using the Reverse Arrangement Test. This test makes no assumptions about the shape of any underlying trend that may be present in the data.

Further details regarding this method and a set of reference tables can be found at: http://www.itl.nist.gov/div898/handbook/apr/section2/apr234.htm
### Appendix 2: Additional tables

#### Table A1: Rates and year-on-year percentage changes in alcohol attributable hospital admissions, South West Top Tier Local Authorities, 2002/03–2009/10 (ordered by 2009/10 rates)

<table>
<thead>
<tr>
<th>Local Authority Name</th>
<th>2002/03</th>
<th>2003/04</th>
<th>2004/05</th>
<th>2005/06</th>
<th>2006/07</th>
<th>2007/08</th>
<th>2008/09</th>
<th>2009/10</th>
<th>Percentage Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bristol, City of</td>
<td>1,233</td>
<td>1,354</td>
<td>1,711</td>
<td>1,899</td>
<td>1,934</td>
<td>2,252</td>
<td>2,351</td>
<td>10.26</td>
<td>8.3 %</td>
</tr>
<tr>
<td>Plymouth</td>
<td>1,267</td>
<td>1,441</td>
<td>1,385</td>
<td>1,537</td>
<td>1,758</td>
<td>1,860</td>
<td>2,166</td>
<td>14.14</td>
<td>11.14 %</td>
</tr>
<tr>
<td>Bournemouth</td>
<td>861</td>
<td>831</td>
<td>954</td>
<td>1,129</td>
<td>1,186</td>
<td>1,252</td>
<td>1,381</td>
<td>2,005</td>
<td>-4.15 %, 18.5 %, 5.6 %, 10.10 %</td>
</tr>
<tr>
<td>Torbay</td>
<td>993</td>
<td>977</td>
<td>1,075</td>
<td>1,348</td>
<td>1,625</td>
<td>1,910</td>
<td>1,986</td>
<td>-2.10 %, 25.21 %, 18.18 %, 4.0 %</td>
<td></td>
</tr>
<tr>
<td>North Somerset</td>
<td>1,110</td>
<td>1,231</td>
<td>1,491</td>
<td>1,380</td>
<td>1,486</td>
<td>1,544</td>
<td>1,711</td>
<td>11.21 %, -7.8 %, 4.10 %</td>
<td></td>
</tr>
<tr>
<td>Cornwall and Isles of Scilly</td>
<td>913</td>
<td>1,030</td>
<td>1,053</td>
<td>1,190</td>
<td>1,233</td>
<td>1,411</td>
<td>1,528</td>
<td>13.2 %, 13.4 %, 14.14 %, 8.9 %</td>
<td></td>
</tr>
<tr>
<td>South Gloucestershire</td>
<td>1,065</td>
<td>1,194</td>
<td>1,316</td>
<td>1,550</td>
<td>1,525</td>
<td>1,554</td>
<td>1,542</td>
<td>16.32 %, 18.2 %, 2.2 %, 1.1 %</td>
<td></td>
</tr>
<tr>
<td>Gloucestershire</td>
<td>952</td>
<td>1,023</td>
<td>1,124</td>
<td>1,280</td>
<td>1,276</td>
<td>1,378</td>
<td>1,470</td>
<td>7.10 %, 14.12 %, -1.10 %, 8.7 %</td>
<td></td>
</tr>
<tr>
<td>Swindon</td>
<td>723</td>
<td>853</td>
<td>1,056</td>
<td>1,134</td>
<td>1,157</td>
<td>1,166</td>
<td>1,379</td>
<td>15.16 %, 24.7 %, 2.1 %, 18.18 %</td>
<td></td>
</tr>
<tr>
<td>Poole</td>
<td>973</td>
<td>953</td>
<td>1,231</td>
<td>1,299</td>
<td>1,219</td>
<td>1,221</td>
<td>1,387</td>
<td>15.00 %, -2.29 %, 6.6 %, 6.0 %</td>
<td></td>
</tr>
<tr>
<td>Devon</td>
<td>866</td>
<td>973</td>
<td>1,079</td>
<td>1,191</td>
<td>1,262</td>
<td>1,352</td>
<td>1,395</td>
<td>14.43 %, 12.11 %, 10.6 %, 7.3 %</td>
<td></td>
</tr>
<tr>
<td>Somerset</td>
<td>1,065</td>
<td>1,097</td>
<td>1,196</td>
<td>1,219</td>
<td>1,365</td>
<td>1,235</td>
<td>1,331</td>
<td>1,395 %, 3.9.2 %, 12 %, -10 %</td>
<td></td>
</tr>
<tr>
<td>Wiltshire</td>
<td>679</td>
<td>917</td>
<td>1,064</td>
<td>1,077</td>
<td>1,147</td>
<td>1,122</td>
<td>1,338</td>
<td>1,390 %, 35.16 %, 1.6 %, -2.19 %</td>
<td></td>
</tr>
<tr>
<td>Bath and North East Somerset</td>
<td>588</td>
<td>882</td>
<td>1,004</td>
<td>1,146</td>
<td>1,171</td>
<td>1,269</td>
<td>1,383</td>
<td>1,385 %, 50.14 %, 14 %, 2.8 %</td>
<td></td>
</tr>
<tr>
<td>Dorset</td>
<td>781</td>
<td>800</td>
<td>875</td>
<td>950</td>
<td>1,056</td>
<td>1,056</td>
<td>1,175</td>
<td>1,358 %, 2.9 %, 9.11 %, 0.11 %</td>
<td></td>
</tr>
</tbody>
</table>

Note: Cornwall and the Isles of Scilly have been combined due to small numbers.

Table A2: Alcohol Attributable Fractions (AAFs) for hospital admissions

<table>
<thead>
<tr>
<th>ICD code</th>
<th>ICD name</th>
<th>Alcohol Attributable Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0-15</td>
</tr>
<tr>
<td>E24.4</td>
<td>Alcohol-induced pseudo-Cushing's syndrome</td>
<td>1.00</td>
</tr>
<tr>
<td>G31.2</td>
<td>Degeneration of nervous system due to alcohol</td>
<td>1.00</td>
</tr>
<tr>
<td>G62.1</td>
<td>Alcoholic polyneuropathy</td>
<td>1.00</td>
</tr>
<tr>
<td>G72.1</td>
<td>Alcoholic myopathy</td>
<td>1.00</td>
</tr>
<tr>
<td>G2D.6</td>
<td>Alcoholic cardiomyopathy</td>
<td>1.00</td>
</tr>
<tr>
<td>K29.2</td>
<td>Alcoholic gastritis</td>
<td>1.00</td>
</tr>
<tr>
<td>K70</td>
<td>Alcoholic liver disease</td>
<td>1.00</td>
</tr>
<tr>
<td>K86.0</td>
<td>Chronic pancreatitis (alcohol induced)</td>
<td>1.00</td>
</tr>
<tr>
<td>F10</td>
<td>Mental and behavioural disorders due to use of alcohol</td>
<td>1.00</td>
</tr>
<tr>
<td>T51.0</td>
<td>Ethanol poisoning</td>
<td>1.00</td>
</tr>
<tr>
<td>T51.1</td>
<td>Methanol poisoning</td>
<td>1.00</td>
</tr>
<tr>
<td>T51.9</td>
<td>Toxic effect of alcohol, unspecified</td>
<td>1.00</td>
</tr>
<tr>
<td>X45</td>
<td>Accidental poisoning by and exposure to alcohol</td>
<td>1.00</td>
</tr>
<tr>
<td>W00-W19</td>
<td>Fall injuries</td>
<td>0.00</td>
</tr>
<tr>
<td>W24-W31</td>
<td>Work/machine injuries</td>
<td>0.00</td>
</tr>
<tr>
<td>W32-W34</td>
<td>Firearm injuries</td>
<td>0.00</td>
</tr>
<tr>
<td>W65-W74</td>
<td>Drowning</td>
<td>0.00</td>
</tr>
<tr>
<td>W78-W79</td>
<td>Inhalation of gastric contents/inhalation and ingestion food causing obstruction of the respiratory tract</td>
<td>0.00</td>
</tr>
<tr>
<td>X00-X09</td>
<td>Fire injuries</td>
<td>0.00</td>
</tr>
<tr>
<td>X31</td>
<td>Accidental excessive cold</td>
<td>0.00</td>
</tr>
<tr>
<td>X60-X84, Y10-Y33</td>
<td>Intentional self-harm/Event of undetermined intent</td>
<td>0.00</td>
</tr>
<tr>
<td>X85-Y09</td>
<td>Assault</td>
<td>0.00</td>
</tr>
<tr>
<td>§§</td>
<td>Pedestrian traffic accidents</td>
<td>0.00</td>
</tr>
<tr>
<td>§</td>
<td>Road traffic accidents (driver/rider)</td>
<td>0.00</td>
</tr>
<tr>
<td>V90-V94</td>
<td>Water transport accidents</td>
<td>0.00</td>
</tr>
<tr>
<td>V95-V97</td>
<td>Air/space transport accidents</td>
<td>0.00</td>
</tr>
<tr>
<td>K22.6</td>
<td>Gastro-oesophageal laceration-haemorrhage syndrome</td>
<td>0.00</td>
</tr>
<tr>
<td>ICD code</td>
<td>ICD name</td>
<td>Alcohol Attributable Fraction</td>
</tr>
<tr>
<td>----------</td>
<td>----------</td>
<td>------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0-15</td>
</tr>
<tr>
<td>K73, K74</td>
<td>Chronic hepatitis, not elsewhere classified and Fibrosis and cirrhosis of liver</td>
<td>M</td>
</tr>
<tr>
<td>K85, K86.1</td>
<td>Acute and chronic pancreatitis</td>
<td>0.00</td>
</tr>
<tr>
<td>I85</td>
<td>Oesophageal varices</td>
<td>0.00</td>
</tr>
<tr>
<td>C00-C14</td>
<td>Malignant neoplasm of lip, oral cavity and pharynx</td>
<td>0.00</td>
</tr>
<tr>
<td>C15*</td>
<td>Malignant neoplasm of oesophagus</td>
<td>0.00</td>
</tr>
<tr>
<td>C32</td>
<td>Malignant neoplasm of larynx</td>
<td>0.00</td>
</tr>
<tr>
<td>C16</td>
<td>Malignant neoplasm of stomach</td>
<td>0.00</td>
</tr>
<tr>
<td>C18</td>
<td>Malignant neoplasm of colon</td>
<td>0.00</td>
</tr>
<tr>
<td>C20</td>
<td>Malignant neoplasm of rectum</td>
<td>0.00</td>
</tr>
<tr>
<td>C50</td>
<td>Malignant neoplasm of breast</td>
<td>0.00</td>
</tr>
<tr>
<td>F10-115</td>
<td>Hypertensive diseases</td>
<td>0.00</td>
</tr>
<tr>
<td>G47-G48</td>
<td>Cardiac arrhythmias</td>
<td>0.00</td>
</tr>
<tr>
<td>G50-G51</td>
<td>Heart failure</td>
<td>0.00</td>
</tr>
<tr>
<td>G40-G41</td>
<td>Epilepsy and Status epilepticus</td>
<td>0.00</td>
</tr>
<tr>
<td>I60-I62, I69.0-I69.2</td>
<td>Haemorrhagic stroke</td>
<td>0.00</td>
</tr>
<tr>
<td>I63-I66, I69.3, I69.4</td>
<td>Ischaemic stroke</td>
<td>0.00</td>
</tr>
<tr>
<td>L40 excluding cirrhosis L40.5</td>
<td>Psoriasis</td>
<td>0.00</td>
</tr>
</tbody>
</table>

**Note**

- K70 split out from K70+K74. K70 on own is wholly attributed
- * - All AFs have changed
- K74 split out from K70+K74 and K73 added. AFs differ to those for K70+K74
- C16 no longer included
- § V12-V14 (.3 -.9), V19.4-V19.6, V19.9, V20-V28 (.3 -.9), V29-V79 (.4 -.9), V80.3-V80.5, V81.1, V82.1, V82.9, V83.0-V86 (.0 -.3), V87.0-V87.9, V89.2, V89.3, V89.9
- §§ V02-V04 (.1, .9), V06.1, V09.2, V09.3

Further information

This report is available at:
www.swpho.nhs.uk

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About the South West Public Health Observatory

The South West Public Health Observatory (SWPHO) is part of a network of 12 public health observatories working across the five nations of England, Scotland, Wales, Northern Ireland and the Republic of Ireland. The nine Public Health Observatories in England work together through a single work programme which contains both national and local elements. We produce information, data and intelligence on people’s health and health care for practitioners, policy makers and the wider community. Our expertise lies in turning information and data into meaningful health intelligence to support decision makers.

On behalf of the Department of Health, the SWPHO works in partnership with the NHS, local authorities, researchers, national agencies as well as agencies in the South West.

The SWPHO incorporates the National Drug Treatment Monitoring System South West (NDTMS-SW), and in April 2005 merged with the South West Cancer Intelligence Service (SWCIS).

For more information about the SWPHO and its partner organisations, please visit www.swpho.nhs.uk

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